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STANDARDS FOR UTAH SCHOOL BUSES AND OPERATIONS

1999 Edition with Updates for 2004

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This edition of the *Standards for Utah School Buses and Operations* supersedes all previous editions

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UTAH STATE OFFICE OF EDUCATION

STANDARDS FOR UTAH SCHOOL BUSES AND OPERATIONS

1999

FOREWORD

The 1999 edition is based on the *National Minimum Standards for School Buses and National Minimum Standards Guidelines for School Bus Operations, 1995 Revised Edition: Recommendations of the Twelfth National Conference on School Transportation*, Warrensburg, Missouri, May 1995, and the *Standards for Utah School Buses and Operations, 1987 Revised Edition*, Utah Transportation Commission and Utah State Board of Education, October 1987.

The *Standards for Utah School Buses and Operations, 1999 Edition* serves two important purposes. First, it assists pupil transportation personnel in their effort to provide Utah's school children with maximum safety consistent with economic use of pupil transportation funds and available school bus technology. Second, it provides bus manufacturers, equipment suppliers, government agencies, technicians, and mechanics with an outline of minimum specifications for school buses owned and operated in Utah. This standard fulfills part of the state's responsibility as outlined in *Highway Safety Program Standard No. 17, Pupil Transportation Safety*, U.S. Secretary of Transportation, in accordance with provisions of the Highway Safety Act of 1966.

This document is prepared in accordance with Titles 27, 41, 53, and 53A of the *Utah Code* and Part 49 of the *Code of Federal Regulations*. It is based primarily on the *1995 National Minimum Standards for School Buses and Operations*, and includes supplementary provisions adopted by the School Bus Standards Committee of this state. This committee, created and empowered by state law to establish minimum standards for school buses and school bus operations, periodically modifies the *Standards* to ensure that they conform with national standards and that they reflect the state of the art in equipment technology.

The *Standards* is composed of two major divisions: bus standards and operations standards. The first division sets forth minimum state standards for school buses such as body strength, color, seat design, and electrical systems. The second major division provides state rules for the operation of school buses. These include such guidelines as employee qualifications, maintenance standards, bus routing, and finance. Each of the two major divisions is followed by a set of appendices that provide school districts with practical guidance for equipment care and day-to-day operations.

This edition of the *Standards* includes numerous minor changes in the bus body standards, all of which follow changes in the national standards resulting from the 12th National Conference on School Transportation in Warrensburg, Missouri, in May 1995.

The 2004 update of this edition of the *Standards* includes changes that were approved by the Utah State Board of Education on March 5, 2004 at a regular meeting held at the Utah State Office of Education.

ACKNOWLEDGMENTS

The committee acknowledges the assistance of its many colleagues, both within and outside the State of Utah, and to the numerous individuals in the school bus industry who have contributed significant technical advice. School district transportation directors from across the state provided invaluable assistance throughout the project. Many members of the original standards committee have since moved on to other positions or have retired. Their help was immeasurable in writing these standards.

Special thanks to Kelvin C. Clayton, who was Pupil Transportation Specialist at the time the core group of the current committee was organized, and to James P. (Pat) O'Hara who served as Pupil Transportation Specialist and Chairman of the Standards Committee until November of 1997, at which time he became Director of Finance and Statistics at the Utah State Office of Education. Dr. O'Hara is currently Director of Special Services for Murray School District.

UTAH STATE OFFICE OF EDUCATION

STANDARDS FOR UTAH SCHOOL BUSES

AND OPERATIONS

1999

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*Additions approved by the Utah State Office of Education, March 5, 2004

GENERAL REQUIREMENTS

SCOPE AND OBJECTIVES

This document sets forth requirements for the design, construction, and operation of all school buses utilized, whether owned or leased by any school district, or privately owned and operated under contract with any school district. Local school districts and private schools have the responsibility for developing the specifications for and the procurement of school buses used in their pupil transportation programs and shall ensure that their vehicles meet or exceed the standards contained herein. School districts are encouraged to specify requirements in excess of the standards whenever such action will enhance their transportation programs. Any additions of school bus equipment or alternations in the bus construction and operations not provided for in the *Standards for Utah School Buses and Operations* are prohibited without prior approval as outlined in Part H entitled *Exemption from or Modification of Requirements*.

Standards for Utah School Buses and Operations, 1999 Edition replaces the *1987 Standards for Utah School Buses and Operations*. This edition will be effective November 15, 1999. All school buses ordered after the effective date and all school bus operations shall meet these standards. This document is intended to provide standards that meet or exceed Federal Motor Vehicle Safety Standards now in effect. Federal standards and Utah motor vehicle laws shall govern instances not specifically covered in these standards.

School buses ordered before the 1999 model year shall meet or exceed the *Standards for Utah School Buses and Operations* applicable at the time of order placement.

STATUTORY AUTHORITY

These standards are issued under authority of Title 41 of the *Utah Code* (Department of Transportation). This statute, at §41-6-115, states "...The Department of Transportation by and with the advice of the State Board of Education and the Department of Public Safety shall adopt and enforce regulations not inconsistent with this chapter to govern the design and operation of all school buses when owned and operated by any school district or privately owned and operated under contract with any school district, or privately owned for use by a private school in this state, and such regulations shall by reference be made a part of any such contract with a school district or private school. Every school district, or private school, its officers and employees, and every person employed under contract by a school district shall be subject to said regulations."

Regulations contained herein are applicable to public schools and all operations under the jurisdiction of the State Board of Education. For standards or regulations applicable to private schools, refer to the Utah Code or regulations adopted by the Department of Transportation through Utah's Rule Making Act and published as a separate document.

RESPONSIBILITIES OF SUPPLIERS

A. School bus chassis and/or body dealers, distributors, and manufacturers must comply with the *Standards for Utah School Buses and Operations*. The bidder agrees to certify that the vehicle meets or exceeds all federal and state standards upon delivery of the vehicle.

B. Certification: All manufacturers of school bus chassis, bodies, or complete buses desiring to supply such equipment for use in the State of Utah shall provide the Pupil Transportation Specialist, Utah State Office of Education, and the Safety Division of the Utah Department of Transportation with a certification that their products, identified by specific model numbers, meet or exceed all requirements of the *Federal Motor Vehicle Safety Standards* and the *Standards for Utah School Buses and Operations*. This certification must be provided before any equipment is supplied in the state and not later than February 1 of each succeeding calendar year. Manufacturers shall also provide such test data or other information necessary to substantiate their claim of compliance. Required supporting data are listed below.

C. Supporting data for certification of school bus chassis shall include at least the following information, but may be supplemented with additional information if offered by the supplier or if requested by the purchaser:

1. Manufacturer's gross vehicle weight rating.
2. Chassis weight, overall dimensions, and location of the center of gravity.
3. Engine performance curves (horse power torque vs. speed in revolutions per minute).
4. Power and gradient curves (with representative bus bodies).
5. Exhaust system noise level.
6. Engine emission levels.
7. Axle capacities.
8. Spring capacities.
9. Brake system parameters or stopping distance vs. speed (with representative bus bodies).
10. Horn noise level.
11. Temperature and quantity of hot water available for use in heating system.
12. Alternator output at the normal operating speed of the engine and at the engine manufacturer's recommended idle speed.

D. Supporting data for certification of school bus bodies shall include, but not be limited to:

1. Body dimensions, weights, and location of the center of gravity.
2. Data from crash-worthiness tests conducted in accordance with Appendix 1. (Manufacturers will attach certification plate signifying vehicle compliance with Colorado Racking Load Test.)
3. Data to verify compliance with the passenger seat cushion retention requirements as contained in FMVSS 222.

4. Data to verify compliance with the passenger seat attachment strength requirements as contained in FMVSS 222.

E. All certifications and supporting data shall be sent to the Pupil Transportation Specialist, Utah State Office of Education, 250 East 500 South, Salt Lake City, Utah 84111, and the Safety Regulations Administrator, U.D.O.T., Division of Safety, 4501 South 2700 West, Salt Lake City, Utah 84119.

F. A list of the certified bus manufacturers will be provided to the districts by March 1 each year.

G. Delivery Requirements: The school bus manufacturer shall provide the following materials to the purchaser of a new school bus at the time the purchaser takes possession of the bus:

1. Line set tickets for each individual unit of the bus, and a separate set of tickets for buses manufactured in two parts.

2. A copy of the pre-delivery service performed and verified by a checkout form for each individual unit.

3. Warranty book and statement of warranty for each individual unit. All warranties shall commence on the day that the purchaser takes possession of the completed bus.

4. Service manual for each individual unit or group of identical units.

5. Parts manual for each individual unit or group of identical units.

H. Inspection and acceptance testing of new school buses: Not more than 90 days following delivery of any new school bus to a Utah school district or to a contractor serving a school district, the bus shall be inspected by the Safety Inspection Office of the Utah Highway Patrol. Prior to being placed into service, the bus shall be inspected and tested by a mechanic to verify compliance with these standards:

1. Tests that will be conducted during the acceptance inspection of a school bus shall include, at a minimum:

(a). Inventory of required safety features, including district specifications.

(b). Functions tests of all lamps and signals, the emergency braking system, horn, and other operating systems.

2. Failure to satisfy all requirements of the *Standards* shall result in either the bus being given a provisional approval until the manufacturer brings the vehicle up to standards, an exemption from the subject requirement requested (See Part H), or the vehicle will be deadlined pending compliance. A provisional approval shall not be longer than 90 consecutive days. Failure to bring the bus up to standards or apply for an exemption during the provisional period shall result in the bus being deadlined.

I. Body-On-Chassis Type School Bus: In case a school district elects to contract with one of two or more manufacturers who then subcontracts with the other manufacturers, it shall be the responsibility of the end supplier, as prime contractor, to ensure that the completed bus satisfies both the chassis and body requirements.

J. Notice of Noncompliance: Dealers, distributors, or manufacturers who supply school transportation vehicles in the State of Utah that do not comply with the *Standards for Utah School Buses and Operations* shall be notified of noncompliance and a general notice will be sent to all school districts and school

transportation supervisors within the state advising that equipment supplied by the specified dealer, distributor or manufacturer is not in compliance with Utah standards. If a dealer, distributor, or manufacturer has been notified of noncompliance in accordance with paragraph 3.06 and replaces or modifies the equipment to make it comply with the *Utah Standards*, a notice of compliance will be issued within 30 days of receipt of proof of compliance.

K. School bus manufacturers shall be given at least 90 days notification of any changes in the *Standards for Utah School Buses and Operations*.

DEFINITIONS

A. School bus designations used in this document are taken from the Twelfth National Minimum Standards Conference on School Transportation (1995). It should be noted that vehicles with a designed capacity of ten or fewer (including the driver) cannot be certified as school buses under federal regulations.

B. *School Bus* means every motor vehicle designed to carry more than ten persons, including the driver, that is used to transport school children to or from school or in connection with related activities. This definition does not include vehicles that only carry school children along with other passengers as part of the operation of a common carrier under the jurisdiction of the Utah Department of Transportation or Public Service Commission, or those vehicles in informal or intermittent arrangements such as sharing of actual gasoline expense or participation in a car pool for the transportation of children to or from school or other school activity. Nor does this definition include tour buses chartered for a specific trip.

1. TYPE A - A Type "A" school bus is a conversion or body constructed upon a van-type or cutaway front-section vehicle with a left-side driver's door, designed for carrying more than 10 persons. This definition shall include two classifications: *Type A-I*, with a Gross Vehicle Weight Rating (GVWR) over 10,000 pounds and *Type A-II*, with a GVWR of 10,000 pounds and under.

2. TYPE B - A Type "B" school bus is a conversion or body constructed and installed upon a van or front-section vehicle chassis, or stripped chassis, with a GVWR of more than 10,000 pounds, and designed to carry more than 10 persons including the driver. Part of the engine is beneath and/or behind the windshield and beside the driver's seat. The entrance door is behind the front wheels.

3. TYPE C - A Type "C" school bus is a body installed upon a flat back cowl chassis with a GVWR of more than 10,000 pounds that is designed for carrying more than ten persons including the driver. All of the engine is in front of the windshield and the entrance door is behind the front wheels.

4. TYPE D - A Type "D" school bus is a body installed upon a chassis, with the engine mounted in the front, midships, or rear, with a GVWR of more than 10,000 pounds, designed to carry more than 10 persons including the driver. The engine may be behind the windshield and beside the driver's seat, at the rear of the bus, behind the rear wheels, or midships between the front and rear axles. The entrance door is ahead of the front wheels.

C. *Multipurpose Passenger Vehicle* (MPV) means every motor vehicle designed for 10 or fewer persons, including the driver's position, and cannot be certified as a school bus. In determining passenger capacity, wheelchair positions are counted as four passenger positions. Although a school entity may use a station wagon, full-sized sedan, small van of non-school bus capacity, etc., to transport pupils to and from school or related events, the vehicle shall not be identified as a school bus (including color) and shall not stop or control traffic on the traveled portion of the roadway to load or unload passengers.

D. *Activity School Bus* - An Activity School Bus is every motor vehicle designed to carry more than 10 persons, including the driver, that is used to transport children to and from school-related activities. It may not be painted national school bus yellow, or be equipped with traffic control devices as are required on regular school buses; however it must meet all other standards for the state of Utah for a school bus. Activity

E. *Vans* - In the state of Utah, no vehicle designed to carry 11 or more passengers, including the driver, will be used by a school district or private contractor under contract with a school district for transporting students to and from school unless the vehicle meets all FMVSS for a school bus. If a vehicle designed to carry 11 or more passengers does not meet FMVSS standards for a school bus and is used to transport students to and from school, the route will be ineligible for state reimbursement.

An opinion of the National Highway Traffic Safety Administration school bus safety report (May 1993) states:

"The agency (NHTSA) believes that school buses should be as safe as possible. Accordingly, minimum safety standards that all new school buses must meet have been established. Federal law prohibits dealers from selling or leasing vehicles with a capacity of more than 10 persons, intended for transporting students to and from school or school-related activities, unless the vehicles comply with the applicable Federal school bus safety standards. Subject to state law, a school could use vans with a capacity of 10 or less to transport school children; however the agency advises against this action. NHTSA believes that safety standards requiring a higher level of safety performance for school buses is appropriate. **Thus while van type school buses (Type A) are somewhat more expensive than a conventional full-size van, the increased levels of safety justify the higher cost. We believe that school children should be transported in vehicles that provide them with the highest levels of safety.**" (Emphasis added)

CHASSIS REQUIREMENTS

AIR CLEANER

A. The engine intake air system shall be furnished and properly installed by the chassis manufacturer to meet engine manufacturers' specifications.

B. The intake air system for diesel engines shall have an air cleaner restriction indicator properly installed by the chassis manufacturer to meet engine specifications. (Exception: Type A-II may or may not have this indicator.)

AXLES

A. Weight distribution of fully loaded bus on level surface shall not exceed the manufacturer's front gross axle weight rating and rear gross axle weight rating.

B. The front and rear ends, including suspension assemblies, shall have a gross axle weight rating at ground at least equal to that portion of the load as would be imposed by the chassis manufacturer's maximum gross vehicle weight rating.

C. Two-speed rear axles are permissible, but if used, provisions shall be made to ensure that the parking and emergency brake systems operate directly upon the rear axles or wheels and not upon the drive shaft.

BLOCK HEATER

Buses furnished with diesel engines must have an engine block heater. The heater shall be 110 volt, minimum 700 watt for 400 CID or smaller engines and a minimum 1000 watt for engines over 400 CID. They shall also be furnished with an ether/propane quick-starting aid that is thermostatically controlled and a pre-shot measurement type. (Exception: Diesel engines that are equipped with glow plug or air intake starting systems do not require a quick-starting aid.)

BRAKE SYSTEMS

A. All buses larger than 49 passenger capacity (including driver) or furnished with a two-speed axle must be equipped with air brakes. (Forty-nine passenger capacity is the normal rated seating capacity before any modification such as wheelchair positions, etc.)

B. If the bus is equipped with a two-speed rear axle, the parking brake system shall operate directly upon the rear axle or wheels such that the parking brake system will not be disconnected from the wheels when the rear axle is in the neutral position. (Drive shaft brakes do not meet this requirement.)

C. Vacuum Assist Systems:

1. A gauge displaying the value of the vacuum in the reservoir, in inches of mercury, shall be located in clear view of the driver.

2. An audible and visual signal shall be provided to warn the driver in case the vacuum in the reservoir is eight inches of mercury or less.

D. Air Brake Systems:

1. The compressor used in an air brake system shall be a minimum of 12 cubic feet and be driven by the engine.

2. Reservoir(s) shall have a minimum combined capacity of 3,750 cubic inches, except Type D buses for which the capacity shall be 4,500 cubic inches.

(a). There shall be a manually operated or an automatic condensation drain valve in each reservoir. If an automatic valve(s) is used, it must be heated to prevent freezing.

(b). There shall be a safety valve installed in the first reservoir, which shall be set to release pressure should the reservoir pressure exceed 150 psi.

3. All tubing and hoses used in the air brake system shall conform to applicable Society of Automotive Engineers (SAE) standards and shall be installed so as to be protected against excessive heat and to accommodate the normal vibrations and motions of the vehicle without damage.

4. The low pressure warning signal shall be both audible and visual.

E. Buses using air or vacuum in the operation of the brake system shall be equipped with warning signals, readily audible and visible to the driver, that will give a continuous warning when the air pressure available in the system for braking is 60 pounds per square inch (psi) or less, or the vacuum in the system available for braking is eight inches of mercury or less. An illuminated gauge shall be provided that will indicate to the driver the air pressure in pounds per square inch or the vacuum available for the operation of the brakes as shown in inches of mercury. (Type A-II buses: Manufacturers' standards.)

F. Vacuum-assist brake systems shall have a reservoir used exclusively for brakes that shall be adequate to ensure against loss in vacuum at full stroke application such that not more than 30 percent of the vacuum is lost with the engine off. Brake system on gas-powered buses shall include suitable and convenient connections for the installation of a separate vacuum reservoir.

G. Any brake system dry reservoir shall be so safeguarded by a check valve or equivalent device that, in the event of failure or leakage in its connection to the source of compressed air or vacuum, the stored dry air or vacuum shall not be depleted by the leakage or failure.

H. Buses using a hydraulic-assist brake system shall be equipped with warning signals, readily audible and visible to the driver, that will provide continuous warning in the event of a loss of fluid flow from primary source or loss of electric source powering the back-up system. (Type A-II buses: Manufacturers' standards.)

I. The brake lines and booster-assist lines shall be protected from excessive heat and vibration and shall be installed in a manner that prevents chafing.

J. Air Dryer (optional): If required, shall be compatible with the air compressor. The expello valve of the air dryer shall be heated to prevent freezing.

K. Anti-lock brake systems for either air or hydraulic brakes shall include control of all axles in compliance with FMVSS 105 or 121.

L. Parking Brake System: The school bus shall at all times be equipped with a parking brake system adequate to hold the vehicle or combination on any grade on which it is operated under any condition of loading on a surface free from ice and snow. Air parking brake valve will automatically actuate between 30 and 60 pounds per square inch when tested in accordance with OEM procedures.

M. All brake systems should be designed to permit visual inspection of brake lining wear without removal of any chassis components.

BUMPER, FRONT

A. Energy-absorbing bumpers are not permitted.

B. Front bumper shall be furnished by chassis manufacturer as part of the chassis on Type A, B, and C buses. When Type D chassis are supplied to a body company by a chassis manufacturer, the body company shall supply the front bumper as part of the body installation.

C. The front bumper shall be heavy-duty channel steel of one-piece construction at least 3/16-inch thick with not less than an 8-inch face after forming. (Exception: Type A-II vehicles at least 1/8-inch thick.)

D. The front bumper shall extend beyond the forward-most part of the body, grille, hood, and fenders, and shall extend to the outer edges of the fenders at the bumper's top line.

E. The front bumper shall permit the bus to be lifted by a vertical force applied to the bottom of the bumper without damaging either the bumper or its mountings.

COOLING SYSTEM

A. The engine cooling system radiator shall be of sufficient capacity to cool the engine at all speeds in all gears. It shall be of heavy duty-type with increased capacity for high altitude operation. A coolant recovery or surge tank system is required on all Type A, B, C, and D buses.

B. Permanent ethylene-glycol base antifreeze shall be provided by the chassis manufacturer to protect the cooling system to at least 40 degrees below zero Fahrenheit.

C. When a chassis is equipped with an automatic transmission, a heavy duty cooling system with increased capacity in the radiator, fan, transmission cooler, and other necessary components to provide for the additional cooling required by the automatic transmission shall be furnished.

D. Shutters (optional): Radiator shutters, when required, shall be air, hydraulic, or vacuum.

CLUTCH

A. Clutch torque capacity shall be equal to or greater than the engine torque output.

B. A starter interlock shall be installed to prevent actuation of the starter if the clutch is not depressed.

COLOR

Chassis and front bumper shall be black. Hood, cowl, and fenders shall be in National School Bus Yellow. Wheels shall be the color used by manufacturers.

DRIVE SHAFT

Drive shaft shall be protected by a metal guard or guards around circumference of the drive shaft to reduce the possibility of it whipping through the floor or dropping to the ground if broken.

ELECTRICAL SYSTEM

A. All buses shall be equipped with at least a 12-volt electrical system.

B. Battery: A storage battery shall be provided which is of sufficient capacity to take care of starting the engine, lighting, signal devices, heating, and other electrical equipment and shall be compatible with the size alternator supplied with the chassis. Minimum capacities are specified below:

Bus Type	Powered by	Cold Cranking Amperes @ 0°F.
A-II & B	Gasoline	515
A-I, C, & D	Gasoline	800
A, B, C, D	Diesel	1,000

1. Storage battery shall have a minimum cold-cranking capacity rating equal to the cranking current required for 30 seconds at 0 degrees Fahrenheit (-17.8 Celsius) and a minimum reserve capacity rating of 120 minutes at 25 amps. Higher capacities may be required depending upon optional equipment and local environmental conditions.

2. Since all batteries in Type A-II, B, C, and D buses are to be located in a sliding tray, the battery shall be temporarily mounted on the chassis frame by the chassis manufacturer.

C. Alternator.

1. All school buses shall be equipped with an engine-driven alternator with rectifier capable of producing the minimum current specified, and capable of producing 30 percent of its maximum rated output at the normal engine idle speed. A direct-drive alternator is permissible in lieu of belt drive. Belt drive shall be capable of handling the rated capacity of the alternator with no detrimental effect on other driven components.

2. The alternator unit shall be driven by a dual or serpentine belt system directly from the crankshaft or a positive-driven accessory shaft of the engine. (Exception: Type A-II buses and B buses rated 14,500 lb. Gross Volume Weight or less.)

3. Type A-II and type B buses shall have a minimum 100-ampere hour alternator.
Type C buses shall have a minimum 120-ampere alternator.
Type D buses shall have a minimum 160-ampere alternator.

D. Wiring.

1. The engine and frame shall be electrically interconnected by a bonding strap of adequate size to assure proper functioning of the electrical system.

2. All wiring shall conform to current SAE standards.

3. All wiring shall use a standard color and number coding. Each chassis shall be delivered with a wiring diagram that coincides with the wiring of the chassis.

4. Chassis manufacturer shall install a readily accessible terminal strip or plug on the body side of the cowl, or at an accessible location in the engine compartment of vehicles designed without a cowl, that shall contain the following terminals for the body connections:

- (a). Main 100-amp body circuit.
- (b). Tail lamps.
- (c). Right turn signal.
- (d). Left turn signal.
- (e). Stop lamps.
- (f). Back up lamps.
- (g). Instrument panel lights (rheostat controlled by headlamp switch).

E. Circuits: An appropriate identifying diagram (color and number coded) for electrical circuits shall be provided to the body manufacturer for distribution to the end user.

ENGINE FIRE EXTINGUISHER

Manufacturer may provide an automatic fire extinguisher in the engine compartment. This system shall be designed in such a way that it does not automatically shut down the engine.

EXHAUST SYSTEM

A. Exhaust pipe, muffler, and tailpipe shall be outside bus body compartment and attached to chassis.

B. Tailpipe shall be constructed of a corrosion-resistant tubing material at least equal in strength and durability to 16-gauge steel.

C. Chassis manufacturers shall furnish an exhaust system with tailpipe of sufficient length to exit the rear of the bus or at the left side of the bus body no more than 18 inches forward of the front edge of the rear wheel house opening. If designed to exit at the rear of the bus, the tailpipe shall extend at least five inches beyond the end of the chassis frame. If designed to exit the side of the bus, the tailpipe shall extend at least 48.5 inches (51.5 inches if the body is to be 102 inches wide) outboard from the chassis centerline. On Type A-I, B, C, and D buses, no exhaust pipe shall exit beneath an emergency door or fuel fill. Type A-II chassis may be furnished with OEM tailpipe configuration.

D. Exhaust system on gasoline-powered chassis shall be properly insulated from fuel tank connections by a securely attached metal shield at any point where it is twelve inches or less from tank or tank connections.

E. Muffler shall be constructed of corrosion-resistant material.

FRAME AND PASSENGER LOAD

A. Gross vehicle weight (GVW) is the sum of the average chassis weight, the average body weight, the driver's weight, and total seated pupil weight. For purposes of calculation, the driver's weight is 150 pounds and the pupil weight is 120 pounds per pupil.

B. Gross vehicle weight (GVW) shall not exceed 185 pounds per published net horsepower of the engine at the manufacturer's recommended maximum revolutions per minute.

C. Manufacturers' gross vehicle weight ratings (GVWR) shall be furnished in duplicate (unless more are requested) by manufacturers to the state agency having pupil transportation jurisdiction. The state agency shall, in turn, transmit such ratings to other state agencies responsible for development or enforcement of state standards for school buses.

D. Chassis GVWR: The GVW used in design of the chassis and its frame shall be the minimum GVW calculated in Paragraph A, above, or the next larger standard GVWR supplied by the manufacturer.

E. Any secondary manufacturer that modifies the original chassis frame shall guarantee workmanship and materials used in such modification.

F. Any frame modification shall not be for the purpose of extending the wheelbase.

G. Holes in top or bottom flanges or side units of frame, and welding to frame, shall not be permitted except as provided or accepted by chassis manufacturer.

H. Frame construction:

1. Frame shall be designed to correspond with or exceed standard performance criteria for heavy-duty trucks of the same general load specifications used for severe service.

2. When frame side members are used, they shall be of one-piece construction provided that, if there is a necessity to extend frame side members, such extension shall be designed and furnished by chassis or body manufacturer with a guarantee and installation shall be made by either the chassis or body manufacturer and guaranteed by the company making the installation. Extensions of frame lengths are permissible only when such alterations are behind rear hanger of rear springs and shall not be for purpose of extending wheelbase. All such extensions shall be of sufficient material, quality, and strength to provide the same support and durability of manufacturer's standard frame side members. Drop-frame rail sections are not considered frame extensions.

3. Chassis frame will extend to rear body cross member.

4. Welding to frame side rails which is necessary by design to strengthen, modify, or alter basic vehicle configuration shall be performed and guaranteed by the body or chassis manufacturer making the modification.

FUEL TANK

A. Fuel tank or tanks of minimum 30-gallon capacity with a 25-gallon actual draw shall be provided by the chassis manufacturer for Type A, B, and C buses. Type C buses with a passenger capacity of 36 or greater shall be supplied with a 60-gallon fuel tank. All Type D buses shall be provided with a minimum 45-gallon fuel tank. The tank(s) shall be filled and vented to the outside of the body, the location of which shall be so that accidental fuel spillage will not drip or drain on any part of the exhaust system.

B. No portion of the fuel system that is located to the rear of the engine compartment, except the filler tube, shall extend above the top of the chassis frame rail. Fuel lines shall be mounted to obtain maximum possible protection by the chassis frame. (Exception: Type "A" buses.)

C. Fuel filter with replaceable element shall be installed between fuel tank and engine.

D. If a tank size other than 30-gallon is supplied, the location of front of tank and filler spout must remain as specified by the *School Bus Manufacturers' Institute (SBMI) Design Objectives, 1990 Edition*, and the draw capacity shall be 83% of the tank capacity.

E. Unless specific agreement has been made between the body and chassis manufacturers, fuel tanks and filler spouts shall not be located in spaces restricted by *SBMI Design Objectives, 1990 Edition*.

F. Fuel tank(s) may be mounted on left or right sides of frame, either to the rear of the rear axle, front of the rear axle between the wheelbase, or between the frame rails. All installations must meet FMVSS 301.

G. Installation of alternative fuel systems, including fuel tanks and piping from tank to engine, shall comply with all applicable fire codes and applicable Federal Motor Vehicle Safety Standards (FMVSS) in effect on the date of manufacture of the bus.

GOVERNOR

A. An engine governor is permissible. When it is desired to limit road speed, a road speed governor should be installed.

B. When engine is remotely located from driver, a governor shall be installed to limit engine speed to maximum revolutions per minute recommended by engine manufacturer, and a tachometer shall be installed so engine speed may be known to driver.

HEATING SYSTEM

A. The chassis engine shall have plugged openings for the purpose of supplying hot water for the bus heating system. The opening shall be suitable for attaching 3/4-inch pipe thread/hose connector.

B. The engine shall be capable of supplying water having a temperature of at least 170 degrees Fahrenheit at a flow rate of 50 pounds per minute at the return end of 30 feet of one inch inside-diameter automotive hot water heater hose.

HORN

A. Bus shall be equipped with dual horns of standard make with each horn capable of producing complex sound in bands of audio frequencies between 250 and 2,000 cycles per second and tested per Society of Automotive Engineers Standard J-377.

B. Air Horn (Optional): Air horn, if required, shall be dual-horn type under the control of the driver. The control may be pull-cable type, hand-operated dash-mounted switch, or foot operated. Air horn shall be mounted to the roof of the bus body or the chassis frame where it is protected from mud and other corrosives.

INSTRUMENTS AND INSTRUMENT PANEL

A. Chassis shall be equipped with the following instruments and gauges. Lights in lieu of gauges are not acceptable except as noted. Optional instruments and gauges are identified as such.

1. Speedometer.
2. Odometer that displays accrued mileage to seven digits including tenths of miles.
3. Voltmeter.

(a). Voltmeter with graduated scale compatible with the electrical system (Type A, B, C, and D buses).

(b). Ammeter with graduated charge and discharge with ammeter and its wiring compatible with generating capacities is permitted in lieu of, or in addition to, voltmeter.

4. Oil pressure gauge.
5. Water temperature gauge.
6. Fuel gauge.
7. High-beam headlight indicator.
8. Brake indicator gauge for vacuum or air brakes. (A light indicator in lieu of a gauge is permitted on vehicles equipped with hydraulic-over-hydraulic brake systems.)
9. Glow-plug indicator light where appropriate.
10. Tachometer (optional).
11. A self-canceling directional signal switch shall be provided by the chassis manufacturer. It shall have a hazard warning switch in combination with the directional signal switch.
12. Turn-signal indicator lights.
13. Service-hour meter is optional on diesel engine-equipped buses.
14. Engine warning system for low oil pressure and/or high engine temperature is required for Type C and Type D buses.
15. Tachograph or on-board computer are optional.
16. Hub-odometer is optional.
17. Cruise control is optional.

B. All instruments shall be easily accessible for maintenance and repair.

C. Above instruments and gauges shall be full-faced and shall be mounted on the instrument panel in such a manner that each is clearly visible to the driver while in normal seated position. Instruments and gauges may be mounted individually or in "cluster" fashion. In addition, they may be independently removable or may be constructed as a solid state combined panel, in which case the entire panel is removable.

D. Instrument panel shall have lamps of sufficient candlepower to illuminate all instruments, gauges, and shift selector indicator for automatic transmission.

LAMPS AND SIGNALS

A. The chassis manufacturer shall equip the front of a conventional, body-on-chassis bus with headlamps, turn signals, and side marker lamps (Type A and C buses).

B. The bus shall be equipped with at least two dual-beam headlamps of the sealed-beam type, with at least one headlamp on each side of the bus. The headlamps shall be located at a height of not more than 54 inches or less than 24 inches when measured vertically from the center of the lamp to the level ground on which the unloaded bus stands.

C. The bus shall be equipped with a manually-operated dimmer switch for use by the driver in selecting either the high or low beam of the headlights.

D. Fog lights or driving lights are optional. If required, they shall have an operating switch that is independent of the headlight switch.

OIL FILTER

Oil filter of replaceable element type shall be provided and shall be connected by flexible oil lines if it is not of built-in or engine-mounted design.

OPENINGS

All openings in floorboard or firewall between chassis and passenger compartment, such as for gearshift and parking brake lever, shall be sealed unless they are to be altered by the bus body manufacturer. All openings between chassis and passenger compartment made due to alterations by the bus body manufacturer will be sealed by the bus body manufacturer.

RETARDER, DRIVE LINE, OR EXHAUST BRAKES

A. Drive line or transmission retarders are optional.

B. Exhaust brakes are optional.

SHOCK ABSORBERS

Bus shall be equipped with front and rear double-action, heavy-duty shock absorbers compatible with manufacturers' rated axle capacities at each wheel location.

SPRINGS

A. Capacity of springs or suspension assemblies shall be commensurate with chassis manufacturers' gross vehicle weight ratings.

B. If rear steel leaf springs are used, they shall be progressive rate or multi-stage. Front or rear springs may be parabolic.

C. Springs or suspension assemblies shall be of ample resiliency under all load conditions and of adequate strength to sustain the loaded bus without evidence of overload.

D. Front leaf springs shall have a stationary eye at one end and shall be protected by a wrapped leaf in addition to the main leaf.

E. Air ride suspensions in the front, rear, or both are optional.

STEERING GEAR

A. Steering gear shall be approved by chassis manufacturer and designed to assure safe and accurate performance when vehicle is operated with maximum load and at maximum speed. All buses shall be equipped with heavy-duty, truck-type integral gear hydraulic power steering that shall assure safe and accurate performance when the fully-loaded vehicle is operated at maximum speed. Hydraulic power steering is required and shall be of the integral type with integral valves.

- B. If external adjustments are required, steering mechanism must be accessible to accomplish same.
- C. No changes shall be made in steering apparatus that are not approved by chassis manufacturer.
- D. There shall be clearance of at least two inches between steering wheel and cowl, instrument panel, windshield, or any other surface.
- E. The steering mechanism shall provide for easy adjustment for lost motion.
- F. The steering system shall be designed to provide means for lubrication of all wear-points, if wear-points are not permanently lubricated.
- G. Tilting or telescoping steering wheels are optional.

THROTTLE

The force required to operate the throttle shall not exceed 16 pounds throughout the full range of accelerator pedal travel.

TIRES AND WHEELS

- A. Tires and wheels of proper size and load rating commensurate with chassis manufacturers' gross vehicle weight ratings shall be provided.
- B. Dual rear wheels and tires shall be provided on all school buses.
- C. All tires on any given vehicle shall be of the same size and load rating. The load range of all tires shall meet or exceed the gross axle weight rating as required by FMVSS 120.
- D. If vehicle is equipped with a spare tire, the wheel and tire shall be of the same size and load rating as those mounted on the vehicle.
- E. If a tire carrier is required, it shall be suitably mounted in an accessible location outside the passenger compartment.
- F. All wheels on any given vehicle shall be of same size and load rating capacity. Wheels shall be steel disc type; cast or spoke wheels are not permitted.
- G. Buses purchased after the adoption of this edition of the *Standards* shall be fitted only with tubeless tires.

TOW HOOKS

- A. Two front and two rear heavy-duty frame, mounted tow hooks shall be furnished on all buses of Type B, C, and D. Tow hooks must be attached so as not to project beyond the front or rear bumpers.
- B. The front tow hooks shall be furnished by the chassis manufacturer, and the rear tow hooks furnished by the body manufacturer on Type C buses. Front and rear tow hooks shall be furnished by the body manufacturer on Type B and D buses. The installation shall be according to manufacturers' specifications.

TRANSMISSION

- A. The input torque capacity of the transmission shall be at least equal to the maximum net torque developed by the engine.

B. The transmission shall be equipped with an automatic back-up light switch for the operation of the back-up light mounted on the rear of the school bus body. The switch will be wired to the back-up light by the body manufacturer. This switch is to be activated by moving the gear shift lever into the "reverse" position.

C. Manual Transmission:

1. Manual transmission shall be of heavy-duty type. For buses with a capacity of 30 or fewer passengers, transmission shall have four or more speeds forward and one in reverse. For buses with a capacity of over 30 passengers, transmissions shall have five or more speeds forward and one in reverse.

2. Manual transmissions shall be synchro-mesh or constant-mesh in all gears except first and reverse.

D. Automatic Transmission:

Automatic transmission shall provide for not less than three forward speeds and one reverse speed. The shift selector, if applicable, shall provide a detent between each gear position when the gear selector quadrant and shift selector are not steering-column mounted. (Exception: Type A and B buses.)

TURNING RADIUS

A. Chassis with a wheel base of 264 inches or less shall have a right curb and left curb turning radius of not more than 42.5 feet.

B. Chassis with a wheelbase of 265 inches or more shall have a right curb and left curb turning radius of not more than 45 feet.

UNDERCOATING

Chassis manufacturer or its agent shall coat undersides of steel or metallic front fenders with rust-proofing compound for which compound manufacturers have certified to chassis builder that compound meets or exceeds all performance and qualitative requirements of paragraph 3.4 of Federal Specification TT-C-520B using modified test.

WEIGHT DISTRIBUTION

The weight distribution of a fully-loaded bus on a level surface shall not exceed the manufacturer's front gross axle rating and rear gross axle rating.

BODY REQUIREMENTS

AISLE

A. All emergency doors shall be accessible by a 12-inch minimum aisle. Aisle shall be unobstructed at all times by any type of barrier, heater hose and cover, seat, wheelchair, or tie-down, unless a flip-seat is installed and occupied. A flip-seat in the unoccupied (raised) position shall not obstruct the 12-inch minimum aisle to any side emergency door.

B. Seat backs shall be slanted sufficiently to give aisle clearance of 15 inches at tops of seat backs.

BACKUP WARNING ALARM (Optional)

An automatic audible alarm may be installed behind the rear axle and shall comply with the Society of Automotive Engineers published Backup Alarm Standards (SAE 994) specifying 97+- dBA for rubber-tired vehicles.

BATTERY

A. Battery is to be furnished by chassis manufacturer.

B. The body manufacturer shall supply a compartment to securely attach battery on slide-out or swing-out tray in a closed, vented compartment in the body skirt, whereby battery may be exposed for convenient servicing. Battery compartment door or cover shall be hinged at front or top and secured by adequate and conveniently operated latch or other type fastener. (Exception: Type A buses.)

C. A battery quick-disconnect switch may be installed in or adjacent to the battery compartment.

BUMPER (FRONT)

See Chassis Requirements, Page 8.

BUMPER (REAR)

A. Bumper shall be of pressed steel channel or equivalent material at least 3/16-inch thick and nine inches wide (high), and of sufficient strength to permit pushing by another vehicle of the same GVW rating without permanent distortion. (Exception: Type A bus - minimum 3/16 inch x 8 inch.)

B. Bumper shall be wrapped around back corners of bus. It shall extend forward at least 12 inches, measured from rear-most point of body at floor line.

C. Bumper shall be attached to chassis frame in such a manner that it may be easily removed, shall be so braced as to develop full strength of bumper section from rear or side impact, and shall be designed to discourage hitching of rides.

D. Bumper shall extend at least one inch beyond rear-most part of body surface measured at floor line.

E. The bumper provided by the chassis manufacturer may be used on Type A buses.

F. Energy-absorbing bumpers are not permitted.

CEILING

See "Insulation" and "Interior," Body Requirements, Page 26.

CHAINS

See "Wheel-housing," Body Requirements, Page 36.

COLOR

A. The school bus body shall be painted a uniform National School Bus Yellow (NSBY). The roof may be painted white.

B. National School Bus Yellow, as set forth in SBMI-008, within the light and dark tolerances as shown in the table below, shall be used:

**Colormetric (CIE) Data
National School Bus Yellow**

DESCRIPTION	REFLECTANCE	CHROMATICITY	
		X	Y
Centroid	41.5%	.5139	.4434
V+ Light Limit	42.9%	.5139	.4427
V- Dark Limit	39.8%	.5133	.4422
H+ Green Limit	41.6%	.5123	.4368
H- Red Limit	41.7%	.5168	.4489
C+ Vivid Limit	41.5%	.5188	.4457
C- Weak Limit	41.5%	.5095	.4405

C. The body exterior paint trim, bumpers, lamp hoods, rub rails, emergency door arrow, and lettering shall be black.

D. Reflective Material.

1. Rear of bus body shall be marked with strips of reflective NSBY material to outline the perimeter of the back of the bus using material that conforms with the requirements of FMVSS 571.131. The perimeter marking of rear emergency exits per FMVSS 217 and/or the use of reflective "SCHOOL BUS" signs per subparagraph D2, below, partially accomplish the objectives of this requirement. To complete the perimeter marking of the back of the bus, strips of at least 1.75 inches of reflective NSBY material shall be applied horizontally above the rear windows and above the rear bumper extending from the rear emergency exit perimeter marking outward to the left and right rear corners of the bus. Vertical strips shall be applied at the corners connecting these horizontal strips. (See School Bus Body and Chassis, Appendix 2.)

2. "SCHOOL BUS" lettering on the front and rear, if not otherwise lit, shall be backed with reflective NSBY material.

3. Sides of bus body shall be marked with reflective NSBY material at least 1.75 inches wide, extending the length of the bus body and shall be located between the floor line and the beltline.

CONSTRUCTION

A. Construction shall be of prime commercial quality steel or other metal or material with strength at least equivalent to all-steel and corrosion resistance at least equivalent to all-steel as certified by bus body manufacturer. Type B, C, and D buses shall meet joint strength standards. Body joints present in that portion of the Type A-II school bus body furnished exclusively by the body manufacturer shall conform to the performance requirements of FMVSS 221. This does not include the body joints created when body components are attached to components furnished by the chassis manufacturer. Engine hood, fenders, roof caps, and transition panels may be fiberglass.

B. Construction shall provide a reasonably dust-proof and watertight product.

C. A certification plate shall be affixed to the inside of each body in the same area as the body serial number. This certification plate shall contain the following or similar wording: "(manufacturer's name) does hereby certify that (body serial number) has been constructed with standard and/or optional equipment that meets the Colorado Racking Load Test in accordance with Utah State School Bus Standards in effect at the time of manufacture."

CROSSING CONTROL ARM (Optional)

A. Buses may be equipped with a crossing control arm mounted on the right side of the front bumper. The arm may not open more than 90 degrees.

B. All components of the crossing control arm and all connections shall be weatherproofed.

C. The crossing control arm shall incorporate system connectors (electrical, vacuum, or air) at the gate and shall be easily removable to allow for towing of the bus.

D. The crossing control arm shall meet or exceed SAE standard J-1133.

E. The crossing control arm shall be constructed of non-corrosive or non-ferrous material or treated in accordance with the body sheet metal standard.

F. There shall be no sharp edges or projections that could cause hazard or injury to students.

G. The crossing control arm shall extend approximately 72 inches from the front bumper when extended.

H. Crossing control arm shall extend simultaneously with the stop arm by means of the stop arm controls. A manual shut-off switch shall be provided.

DEFROSTERS

A. Defrosting and defogging equipment shall direct a sufficient flow of heated air onto the windshield, the window to the left of the driver, and the glass in the viewing area directly to the right of the driver to eliminate frost, fog, and snow. Defrosting and defogging equipment for Type A vehicles shall direct a sufficient flow of heated air onto the windshield to eliminate frost, fog, and snow.

B. The defrosting system shall conform to Society of Automotive Engineers Standards J-381 and J-382.

C. The defroster and defogging system shall be capable of furnishing heated outside ambient air, although the part of the system furnishing additional air to the windshield, entrance door, and step-well may be of the recirculating air type.

D. Auxiliary fans are not to be considered as a defrosting and defogging system.

E. Portable heaters may not be used.

DOORS

A. Service Door:

1. The service door shall be either manual or power-operated under the control of driver and shall be designed to afford easy release and prevent accidental opening. When a hand lever is used, no part shall come together so as to shear or crush fingers, and the hand lever shall have a heavy duty chrome control handle with lubricated bushings or bearings. When a power door is used, no part of the door mechanism shall be exposed so as to shear or crush fingers. A manual-powered door shall require a pull of not more than 25 pounds to operate.

2. Service door shall be located on right side of bus opposite driver and within direct view of driver.

3. Service door shall have a minimum horizontal opening of 24 inches and a minimum vertical opening of 68 inches.

4. Service door shall be of split type, sedan type, or jack-knife type. Split type door includes any sectioned door that divides and opens inward or outward. If one section of split-type door opens inward and the other opens outward, the front section shall open outward.

5. Lower and upper panels shall be of approved safety glass. Bottom of lower glass panel shall not be more than 10 inches from the top surface of the bottom step when bus is unloaded. Top of upper glass panel shall not be more than six inches from top of door.

6. Vertical closing edges on the service door shall be equipped with flexible material to protect children's fingers from injury.

B. All doors shall be equipped with padding at the top edge of each door opening. Pad shall be at least three inches wide and one inch thick and extend the full width of the door opening.

C. Optional skid plates to protect door step wells may be installed.

D. Emergency Doors:

1. Emergency doors shall be hinged on the right side if the door is in the rear center of the bus, and on the front side if the door is on the side of the bus. It shall open outward and shall be labeled inside and outside to indicate how it is to be opened.

2. Upper portion of rear emergency doors shall be equipped with approved safety glass, the exposed area of which shall not be less than 400 square inches. The lower portion of the rear center emergency door shall be equipped with a minimum of 350 square inches of approved safety glass.

3. There shall be no steps leading to the emergency door.

4. The words "EMERGENCY DOOR", both inside and outside in letters at least two inches high, shall be placed at top of or directly above the emergency door or on the door in the metal panel above the top glass, not on the door glass.

5. The emergency door shall be equipped with padding at the top edge of each door opening. Pad shall be at least three inches wide and one inch thick and extend the full width of the door opening.

6. The side emergency door, if installed, must meet the requirements set forth in FMVSS 217, S 5.4.2.1, (b), regardless of its use with any other combination of emergency exits.

E. All emergency doors, emergency exit windows, and push-out type windows shall be furnished with an audible buzzer to indicate to the driver that the exit is open. Side emergency exit door must be furnished with a three-point bar lock.

F. Emergency Exit(s). Each school bus shall be equipped with either (1) an emergency door located in the center of the rear end or (2) if the engine or a storage compartment is located in the rear, a left side emergency door and an emergency window in the rear end. Double side emergency exits are permitted. Emergency exits shall meet FMVSS 217.

1. The passage to the emergency door shall be kept clear of obstructions and there shall be no steps leading to the emergency door.

2. A side emergency door shall be equipped with safety glass in the upper portion. The lower portion shall be at least the same gauge metal as used in the body.

3. A positive, mechanical device shall be used that holds the door open and prevents it from closing during emergencies and evacuation drills.

4. A rear emergency window (used in conjunction with a left-hand emergency door) shall be at least 16 inches high and 54 inches wide on buses 80 inches or more in total width and at least 16 inches high and 48 inches wide on buses less than 80 inches in total width.

5. A rear emergency window shall be hinged from the top, and designed to prevent accidental closing in an emergency. A header pad that lines the upper length of the window opening shall be furnished.

6. Paneling of sufficient strength to support the weight of an occupant shall cover the space between the top of the rear davenport seat and the inside lower ledge of the rear emergency window.

7. Emergency doors shall be designed to be opened from either the inside or outside of the bus and shall be equipped with a fastening device which may be quickly released but is designed to offer protection against accidental release. Control from the driver's seat is not permitted. Provisions for opening from the outside shall consist of a non-detachable device designed to prevent hitching-to, but to permit opening when necessary. There shall be no exterior body projections that could injure pupils exiting through the emergency window or door other than the proper opening controls.

8. If the latch handle on the outside of the emergency door is not located on the outer edge of the door, a door pull shall be affixed in the extreme left-hand location at the bottom to prevent hitching-on. The emergency pull shall be constructed of heavy metal and shall be free from any sharp edges likely to cause injury.

9. Emergency doors shall be equipped with a slide-bar, cam-operated lock. Slide bar shall have a minimum stroke of one inch. The door lock shall be equipped with an interior handle that extends approximately to the center of the emergency door. The handle shall lift up to release the lock. The latch handle shall be protected by a metal guard of adequate width to prevent the handle from being actuated by

a child falling against the door, but shall have sufficient clearance above the latch handle to permit easy grasp of the handle. The handle shall be of sufficient length to permit a small child to open the door.

10. Emergency door locks shall be equipped with suitable electric plunger-switches connected to a buzzer located in the driver's compartment. The switch shall be enclosed in a metal case, and wires leading from switch shall be concealed in the bus body; it shall also be installed so that the plunger contacts the outer edge of the slide bar in such a manner that any movement of slide bar will immediately close the circuit and activate the buzzer.

11. Rear emergency window shall be equipped with a latch or latches on the inside designed for quick release, but offer protection against accidental release. Rear emergency window shall also be equipped with a latching mechanism that can be actuated from the outside. The outside release shall be non-detachable and be designed to prevent hitching-on.

12. The window latch shall be equipped to activate the electric buzzer when the latch is released.

13. Emergency doors, hatches, or windows shall be installed, constructed, and identified as prescribed in FMVSS 217. Additional roof hatches are optional and must be equivalent in quality to the Transpec Triple Value or Specialty Manufacturing Corporation (SMC) Model 8915. Additional push-out windows are optional.

14. There shall be no obstruction higher than 1/4" across the bottom of any emergency door opening.

G. Exterior paneling and rub rails on all doors shall match and align with paneling and rub rails of the bus body. On wheelchair lift doors, the color, rub rail extensions, lettering, and other exterior features shall match adjacent sections of the body, unless the hinge or the window makes it non-compatible.

H. Fuel access doors are optional.

EXHAUST SYSTEM

A. Exhaust pipe, muffler, and tailpipe shall be outside bus body compartment and attached to chassis.

B. Tailpipe shall be constructed of a corrosion-resistant tubing material at least equal in strength and durability to 16-gauge steel.

C. Chassis manufacturer shall furnish an exhaust system with tailpipe of sufficient length to exit the rear of the bus or at the left side of the bus body no more than 18 inches forward of the front edge of the rear wheel house opening. If designed to exit at the rear of the bus, the tailpipe shall extend at least five inches beyond the end of the chassis frame. If designed to exit the side of the bus, the tailpipe shall extend at least 48.5 inches (51.5 inches if the body is to be 102 inches wide) outboard from the chassis centerline. On Type C and D buses, no exhaust pipe shall exit beneath an emergency door or fuel fill. Type A and B chassis may be furnished with OEM tailpipe configuration.

D. Exhaust system on gasoline-powered chassis shall be properly insulated from fuel tank connections by a securely attached metal shield at any point where it is twelve inches or less from fuel tank or tank connections.

E. The exhaust system on vehicles designed for transporting special needs pupils shall be routed to the left of the right frame rail to allow for the installation of a lift on the right side of the vehicle.

F. Muffler shall be constructed of corrosion-resistant material.

FIRE EXTINGUISHERS

A. The bus shall be equipped with at least one pressurized, dry chemical type fire extinguisher complete with hose, approved by Underwriters Laboratories Inc. Extinguisher must be mounted in a bracket located in the driver's compartment and must be readily accessible to the driver and passengers. A pressure gauge shall be mounted on the extinguisher so as to be easily read without moving the extinguisher from its mounted position.

B. The fire extinguisher shall be rated at 5 lb. 3A40BC or greater. The operating mechanism shall be sealed with a type of seal that will not interfere with the use of the fire extinguisher.

FIRST AID AND BODY FLUID CLEAN-UP KITS

A. All buses shall have a first-aid kit in a removable, moisture- and dust-proof metal container mounted in a place accessible to the driver. This place shall be marked to indicate its location. Minimum contents are as follows:

- 2 - 1" x 2-1/2 yards adhesive tape rolls
- 24 - sterile gauze pads 3" x 3"
- 100 - 3/4" x 3" adhesive bandages
- 8 - 2" bandage compress
- 10 - 3" bandage compress
- 2 - 3" x 6 yards sterile gauze roller bandages
- 2 - non-sterile triangular bandages approximately 40" x 36" x 54" with 2 safety pins
- 3 - sterile gauze pads 36" x 36"
- 3 - sterile eye pads
- 1 - blunt-end scissors
- 1 - pair latex gloves
- 1 - mouth-to-mouth airway

B. All buses shall have a body fluid clean-up kit in a moisture and dust proof metal* container properly labeled and mounted. Minimum contents are:

- 1- Full sized polyethylene apron
- 1- Surgical face mask
- 1- Pair protective goggles
- 1- Pair latex gloves
- 1- Packet absorption matter (4 ounces)
- 2- Biohazard disposal bags (at least one red in color)
- 2- 10-gram packets of EPA-approved, chlorine-based antibacterial disinfectant in crystal, liquid, or powder form
- 2- Large paper towels
- 1- Plastic or cardboard clean-up spatula

* Plastic clean-up kit containers purchased prior to the adoption of this edition of the *Standards* are acceptable. Containers purchased following adoption of this edition must be metal.

FLOOR

A. Floor in the under-seat area, including tops of wheel-housings, driver's compartment, and toe-board, shall be covered with rubber floor covering or equivalent having minimum overall thickness of .125 inch.

B. Floor covering in aisle shall be of aisle-type rubber or equivalent, wear-resistant, and ribbed. Minimum overall thickness shall be .187 inch measured from tops of ribs. Floor covering in driver's compartment may be ribbed.

C. Floor covering must be permanently bonded to floor and must not crack when subjected to sudden changes in temperature. Bonding or adhesive material shall be waterproof and shall be of the type recommended by manufacturer of floor-covering material. All seams must be sealed with waterproof sealer and may be covered with a metal strip.

D. Metal cove moldings shall be furnished along all floor to sidewall areas, and rear floor to sidewall areas including corners.

E. On Type A-I, B, C, and D buses, a screw-down plate that is secured and insulated shall be provided for access to the fuel tank sending unit.

HANDRAIL

A handrail approximately 20 inches in length shall be provided in an unobstructed location inside doorway on the left side (right side is optional). Handrail, including the brackets or appurtenances attaching it to the bus body, shall be designed in such a manner that clothing, drawstrings, straps, or buttons cannot catch at any point.

HEATERS

A. Heaters shall be of hot-water type.

B. If only one heater is used, it shall be of fresh air or combination fresh air and recirculating air type.

C. If more than one heater is used, additional heaters may be of recirculating air type.

D. The heating system shall be capable of maintaining throughout the bus a temperature not less than 40 degrees Fahrenheit at the average minimum January temperature as established by the U.S. Department of Commerce, Weather Bureau, for the area in which the vehicle is to be operated.

E. All heaters installed by body manufacturers shall bear a name plate that shall indicate the heater rating in accordance with SBMI Code 001. Said plate, to be affixed by the heater manufacturer, shall constitute certification that the heater performance is as specified in the SBMI Code cited above.

F. Heater hoses shall be adequately supported to guard against excessive wear due to vibration. The hoses shall not dangle or rub against the chassis or sharp edges and shall not interfere with or restrict the operation of any engine function. Heater hose shall conform to SAE J-20c. Heater lines on the interior of bus shall be shielded to prevent scalding of the driver or passengers.

G. Each hot water system installed by a body manufacturer shall include a shutoff valve installed in the pressure and return lines at or near the engine in an accessible location.

H. There shall be a water flow regulating valve installed in the pressure line for convenient operation by the driver.

I. Accessible bleeder valves shall be installed in an appropriate place in the return lines of body company-installed heaters to remove air from the heater lines.

J. Heater motors, cores, and fans must be readily accessible for service. Access panels shall be provided as needed.

K. The body company shall furnish permanent type ethylene-glycol base antifreeze that will provide for protection to the cooling and heating system to at least 40 degrees below zero Fahrenheit.

L. An auxiliary heater booster water pump shall be furnished by the body company on all Type C and D buses. It shall be driven by a 12-volt electric motor and have a minimum flow capacity of 12 gallons per minute with three feet at head measurement.

M. Auxiliary fuel-fired heaters are optional. If used, they must conform to the following:

1. The auxiliary heating system fuel shall utilize the same type fuel as specified for the vehicle engine.

2. Heater(s) may be direct hot air or may be connected to the engine's coolant system.

3. Auxiliary heating systems, when connected to the engine's coolant system, may be used to preheat the engine coolant or preheat and add supplementary heat to the bus heating system.

4. Auxiliary heating systems must be installed pursuant to the manufacturer's recommendations and shall provide a sealed exhaust system that expels exhaust outside the bus.

5. Auxiliary heating systems that operate on diesel fuel shall be capable of operating on #1, #2, or blended diesel fuel without the need for system adjustment.

6. The auxiliary heating system shall require low voltage.

7. Auxiliary heating systems shall comply with all applicable FMVSS, including FMVSS 301, as well as SAE test procedures.

8. Portable heaters may not be used.

HINGES

All exposed metal door hinges subject to corrosion shall be designed to allow lubrication to be channeled to the center 75% of each hinge loop.

IDENTIFICATION

A. The body shall bear the words "SCHOOL BUS" in black letters at least eight inches high, one inch line width, both front and rear of body. The lettering shall be located between the warning signal lamps as high as possible without impairment of its visibility. Lettering shall conform to "Series B" of Standard Alphabets for highway signs. There shall be no other lettering on the front or rear of the bus except for the emergency door identification.

B. The name of the school district, independent school, or transportation company shall be placed on each side of the bus body. The name shall be in black letters, approximately six inches in height and proportionately spaced to achieve a balanced appearance.

C. The numbering of individual buses for identification purposes is permissible. Numerals shall be black and six inches in height. The location of the numbers shall be:

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1. Right side--at level of district identification, behind service door.
2. Rear of the vehicle--curb side below tail light.
3. Forward belt line--belt line on the left side.
4. Additional positions are optional with each district.

D. Buses fueled by Compressed Natural Gas (CNG), LPG, or propane shall display a decal, not exceeding 36 square inches in size, on the rear panel immediately above the bumper indicating the type of fuel used.

E. Lettering according to FMVSS 217 as described above are the only permissible permanent markings. Bumper stickers, decals (other than fuel type), commercial markings, logos (except bus manufacturer's logos), and advertising are not permitted.

INSIDE HEIGHT

Inside body height shall be 72 inches or more, measured metal to metal, at any point on longitudinal center line from front vertical bow to rear vertical bow.

INSULATION

A. Ceiling and walls shall be insulated with proper material to deaden sound and to reduce vibration to a minimum.

B. Thermal insulation is required and shall be of fire-resistant material approved by Underwriters Laboratories, Inc. The material shall be fiberglass batt type or equal with a minimum thickness of 1.5 inches. It shall be installed in the entire roof area, entire body sides, front and rear bulkheads, and rear area walls.

C. Floor insulation is optional. If used, it must be five-ply at least one-half inch thick and/or it shall equal or exceed properties of exterior-type softwood plywood, CD grade as specified in standards issued by U.S. Department of Commerce. Marine grade plywood is optional.

INTERIOR

A. Interior of bus shall be free of all unnecessary projections likely to cause injury. This standard requires inner lining on ceilings and walls. If ceiling is constructed so as to contain lapped joints, forward panel shall be lapped by rear panel and exposed edges shall be beaded, hemmed, flanged, or otherwise treated to eliminate sharp edges.

B. The driver's area forward of the foremost padded barriers will permit the mounting of required safety equipment and vehicle operating equipment.

C. Pan-type overhead luggage racks are optional.

D. Interior noise: Every school bus shall be constructed so that the noise level taken at the ear of the occupant nearest to the primary vehicle noise source shall not exceed 85 dB. The Noise Test Procedure is as follows:

1. The vehicle is located so that no other vehicle or signboard, building, hill, or other large reflecting surface is within 50 feet of occupant's seat.

2. All vehicle doors, windows, and ventilators are closed.

3. All power-operated accessories are turned off.
4. The driver is in the normal seated driving position and the person conducting the test is the only other person in the vehicle.
5. A sound level meter is used that is set at the "A-weighting factor" meter response and meets the requirements of:
 - (a). The American National Standards Institute, Standard ANSI S1.4-1971 *Specifications for Sound Level Meters* for Type 1 meters; or
 - (b). The international Electrotechnical Commission (IEC) Publication No. 179 (1973) *Precision Sound Level Meters*.
6. The microphone is located so that it points vertically upward 6 inches to the right and directly in line with and on the same plane as the driver's ear adjacent to the primary noise source.
7. If the motor vehicle's engine radiator fan drive is equipped with a clutch or similar device that automatically either reduces the rotational speed of the fan or completely disengages the fan from its power source in response to reduced engine cooling loads, the vehicle may be parked before testing with its engine running at high idle or any other speed the operator chooses for sufficient time, but not more than 10 minutes, to permit the engine radiator fan to automatically disengage.
8. With the vehicle's transmission in neutral gear, the engine is accelerated to:
 - (a). Maximum governed speed if it is equipped with an engine governor, or
 - (b). Maximum speed if it is not equipped with an engine governor and is stabilized at that speed.
9. The A-weighted sound level reading on the sound level meter for the stabilized engine speed condition referred to in 8a or 8b, above, is observed and, if it has not been influenced by extraneous noise, is recorded.
10. The vehicle's engine speed is returned to idle and the procedures stated in Paragraphs 8 and 9 above, are repeated until two maximum sound levels within 2 dB of each other are recorded, the two maximum sound level readings are then averaged.
11. The average obtained in accordance with Paragraph 10, above, with a value of 2 dB subtracted therefrom to allow for variations in test conditions and in the capabilities of meters, is the vehicle's interior sound level at the driver's seating position for the purposes of determining compliance with the requirements of this test procedure.

E. Interior side panels from the passenger side window line to the seat mounting ledge shall be mar-resistant aluminized steel, textured panels, stainless steel, or equal non-painted surface to minimize vandalism.

F. Perforated acoustic interior ceiling panels are optional.

LAMPS AND SIGNALS

A. Interior lamps shall be provided that adequately illuminate aisle and stepwell. Stepwell light shall be connected to the automatic door control switch for its operation.

B. Body instrument panel lights shall be controlled by an independent rheostat switch or may be in combination with headlight rheostat switch.

C. School Bus Alternately Flashing Signal Lamps.

1. School bus red signal lamps are alternately flashing lamps mounted horizontally both front and rear, intended to identify a vehicle as a school bus and to inform others that such vehicle is stopped to take on or discharge school children.

2. School bus amber signal lamps are alternately flashing lamps mounted horizontally both front and rear, intended to identify a vehicle as a school bus and to inform others that such vehicle is about to stop to take on or discharge school children.

3. Bus shall be equipped with two red lamps at rear of vehicle and two red lamps at front of vehicle.

4. In addition to four red lamps described in 3, above, four amber lamps shall be installed as follows: One amber lamp shall be located near each red signal lamp, at same level, but closer to vertical centerline of bus. Red and amber signal lamps shall be wired so that amber lamps are activated manually, and red lamps are automatically activated (with amber lamps being automatically cancelled) when bus service door is opened.

D. A master switch is required for the warning light system.

E. The amber warning signal lamps shall be activated manually by a switch mounted on the driver control panel. The red warning signal lamps shall be automatically activated and the operation of the amber lamps canceled when the bus door is opened. The red warning lamps shall be automatically activated any time the door is opened, irrespective of whether the amber warning lamps were activated immediately preceding the door opening unless the master switch is turned off.

F. The alternately flashing warning signal lamp system shall include amber and red pilot indicator lamps located within easy view of the driver that will indicate when the amber or red flashing lamps are operating.

G. The area around the lens of each alternately flashing signal lamp and extending outward approximately three inches shall be painted black. Where there is no flat vertical area of body immediately surrounding the entire lens of lamps, a circular or square band of black approximately three inches wide, immediately below and to both sides of lens, shall be painted on the body or roof area to fit the shape of hoods/visors and roof cap.

H. A single visor/hood for each set of dual lamps or an individual visor/hood for each lamp shall be provided. The visor/hoods shall fit the shape of the lights and roof caps, be a minimum depth of four inches and be painted black.

I. All flashers for alternately flashing red and amber signal lamps shall be enclosed in the body in a readily accessible location.

J. A monitor light for the front and rear lamps of the school bus is optional. If used, the monitor shall be mounted in full view of the driver. If the full circuit current passes through the monitor, each circuit shall be protected by a fuse or circuit breaker protecting against any short circuit or intermittent current.

K. Turn Signals.

1. The bus body shall be equipped with two rear amber arrow-type turn signal lamps, each with a face of at least 38 square inches, and meet SAE specifications.

2. The bus body shall be equipped with two amber arrow turn signal lamps, each with a face of at least 38 square inches on the front of the bus body. These are required on Type B and D buses. They are also required on Type C buses in addition to fender mounted chassis directional lamps. Type A buses shall be as provided by OEM.

3. Two side directional signal lights of 32 candlepower shall be located in the beltline near the front of the bus body. (Exception: Type A). Surface of light frames shall have no sharp edges or points.

4. Two directional pilot lights shall be provided that indicate to the driver that either the left or right directional flashers or the hazard warning flashers are activated. These pilots shall be green in color and bright enough that they can be seen in operation in bright sunlight. They shall be located on the dash or on the bulkhead above the driver.

5. All directional signal lamps must be connected to the chassis hazard warning switch to cause simultaneous flashing of turn signal lamps when needed as hazard warning.

6. Turn signal lamps are to be placed as wide apart as practical and in plain sight of traffic approaching from front or rear.

L. Stop and Tail Lights.

1. The bus shall be equipped with four combination stop and tail lamps mounted on the rear of the body. Two shall be a minimum diameter of seven inches and the other two shall be a minimum of four inches in diameter. The lens color shall be red. The light emitted from the lamps shall be plainly visible for the distance of 500 feet to the rear. The tail lights will be operated by the headlamp switch and the brake lights by the brake light switch. No lettering is permitted on these lamps except for manufacturers' markings. Four inch stop and tail lights may be light emitting diode (L.E.D.) lights.

2. The bottoms of the four-inch diameter stop/tail lights shall emit white light downward to illuminate the rear license plate and bus identification number from a distance of not less than 60 feet in periods of darkness.

3. Stop lights and tail lights shall be placed as wide apart as practical and in plain sight of traffic approaching from the rear.

M. Back Up Lights.

Two four-inch diameter back up lights shall be provided and shall be of sufficient intensity to inform vehicle operators and pedestrians that the school bus is in reverse. The back up lights shall be automatically illuminated when the ignition switch is "on" and the reverse gear is engaged. The chassis manufacturer shall provide the switch for operation of back up lights.

N. Clearance Marker Lights.

1. The bus body shall be equipped with clearance lights on each corner of the bus body, mounted as high as possible on the permanent structure of the bus in such a manner as to indicate the extreme width of the body, and a cluster of three identification lights on the top roof edge of both front and rear ends of the body located at the body's highest point. Side marker lights shall be installed midway between the front and rear clearance lights.

2. The lights on the front and sides shall be amber and the rear lights shall be red.

O. Reflex Reflectors.

1. The bus body shall be equipped with four side-mounted and two rear-mounted reflex reflectors. Light lenses do not suffice as reflectors.

2. Reflectors shall be mounted at a height of not less than 15 inches nor more than 60 inches above the ground.

3. The front side reflectors shall be amber. The right front side reflector shall be located immediately aft of the door, and the other front side reflector shall be located at a similar position on the left side.

4. The rear reflectors (side and rear) shall be red. The two on the sides (one on each side) shall be located as far to the rear as possible, and the two on the rear as far apart as practical.

5. All buses shall be equipped with two additional amber reflectors which shall be located at or near the midpoint between the front and rear side reflectors.

P. Lights and reflectors at or below the bottom window line shall have rounded protective shields or shall be finished in such a manner that sharp edges do not protrude or snag clothing.

Q. A white flashing strobe light may be installed on the roof of a school bus, either (a) centered and not to exceed 1/3 the body length forward from the rearmost edge of the roof, or (b) centered and directly above the crash barrier. The light shall have a single clear lens emitting light 360 degrees around its vertical axis and may not extend above the roof more than maximum legal height. The light shall be operated by a manual switch and an interior pilot light shall be provided to signal when the strobe is operating. Optionally, the light may be wired to activate with the amber alternating flashing signal lamps, continuing through the full loading or unloading cycle, with an override switch to allow activation of the strobe on command.

R. Triangle Warning Device.

Each school bus shall contain at least three reflectorized triangle road warning devices that comply with FMVSS 125 mounted in a container in a place accessible to the driver.

METAL TREATMENT

A. All metal 12 gauge and thinner used in construction of bus body shall be zinc or aluminum coated or treated by equivalent process before bus is constructed. Included are such items as structural members, inside and outside panels, door panels, and floor sills. Excluded are such items as door handles, handrails, interior decorative parts, and other interior plated parts.

B. All metal parts that will be painted shall be (in addition to above requirements) chemically cleaned, etched, zinc/phosphate coated, and zinc/chromate or epoxy primed or conditioned by equivalent process.

C. In providing for these requirements, particular attention shall be given lapped surfaces, welded connections of structural members, cut edges, punched or drilled hole areas in sheet metal, closed or box sections, unvented or undrained areas, and surfaces subjected to abrasion during vehicle operation.

D. As evidence that above requirements have been met, samples of materials and sections used in construction of bus body, when subjected to 1000-hour salt spray test, as provided for in the latest revision of ASTM designation 8-117 "Standard Method of Salt Spray (Fog) Testing," shall not lose more than ten percent of material by weight.

MIRRORS

A. Interior Mirror: Interior mirror shall be either clear view laminated glass or clear view glass bonded to a backing that retains the glass in the event of breakage. Mirror shall have rounded corners and protected edges. Type A and Type B cutaway buses shall have a minimum of a 6" x 16" inch mirror and Type B, C, and D buses shall have a minimum of a 6" x 30" mirror.

B. Exterior Mirrors: Each bus shall have a mirror system that will provide an unobstructed field of view of the area around the bus and that conforms with FMVSS 111 as amended. All exterior mirrors must be adjustable to any driver.

C. Exterior mirrors may be heated.

MOUNTING: BUS BODY

A. Chassis frame shall support rear body cross member. Bus body shall be attached to chassis frame at each main floor sill, except where chassis components interfere, in such a manner as to prevent shifting or separation of body from chassis under severe operating conditions.

B. Insulating material shall be placed at all contact points between body and chassis frame on Type B, C, and D buses, and shall be so attached to chassis frame or body that it will not move under severe operating conditions.

MUD FLAPS

All buses shall be provided with mud flaps or mud shields at all front and rear wheel positions to prevent mud, slush, and gravel from being thrown onto the lower sections of the bus and service entrance area. Mud flaps must be of heavy duty construction.

OVERALL LENGTH AND WIDTH

Overall length of bus shall not exceed forty feet excluding retracted crossing arm, if used. Overall width of bus shall not exceed 102 inches excluding accessories.

RADIOS

A.M./F.M. radios and two-way radios are optional.

RUBBER FENDERS

A. Cove-style rubber fenders shall be furnished on Type D buses on both the front and rear wheel-housing rims to prevent mud, slush, and water from being thrown onto the sides of the bus.

B. Cove-style rubber fenders shall be furnished on the rear wheel-housing rims on Type C buses.

C. Rubber fenders are not required on Type A and B buses.

RUB-RAILS

A. Both sides of the vehicle shall have four rub-rails. They shall be located at the window line, seat line, floor line, and bottom of the body skirt.

1. The window-line rub-rail shall extend from the rear of the service door opening along the right side of the body, extending around the right rear corner to the emergency door, and on the left side from the

beginning point of the passenger compartment along the left side and extending around the left rear corner to the emergency door.

2. The seat-line rub-rail shall cover the same longitudinal area as the window-line rub-rail.

3. The floor-line rub-rail shall cover the same longitudinal area as the window-line rub-rail except at wheel-housings, extending around the radii of the right and left rear corners as far as possible.

4. The skirt-line rub-rail shall cover the same longitudinal area as the window-line rub-rail, except that it shall terminate at the rear corners of the vehicle.

B. The window-line, seat-line, and floor-line rub-rails shall be attached to the outside of the body at each body post and to all other vertical structural members.

C. The skirt-line rub-rail shall be attached to the outside of the body panels and other structural members behind the body panels.

D. All rub-rails shall be four inches or more in width in their finished form and shall be of 16 gauge steel or suitable material of equivalent strength. They shall be constructed in corrugated or ribbed fashion.

E. Pressed-in or snap-on rub rails are not acceptable.

F. Exception: Rub rails will not extend around rear corners of buses using rear center luggage compartment or Type D buses with rear engine, and they must accommodate side emergency doors.

SEAT BELT FOR DRIVER

A Type 2 lap belt/shoulder harness restraint system shall be provided for the driver. The assembly shall be equipped with an emergency locking retractor (ELR) for the continuous-belt system. The lap portion of the belt shall be guided or anchored where practical to prevent the driver from sliding sideways under it. The lap belt/shoulder harness shall be designed to allow for easy adjustment in order to fit properly and effectively protect drivers varying from 5th percentile female to 95th percentile male.

SEAT: DRIVER'S

A. The driver's seat must be high-back, six (6) way adjustable without the use of tools. It shall adjust forward and backward, be mounted to adjust upward and downward, with a tilt-back that allows the back to tilt forward and rearward. (Exception: Type A and Type B Cutaway chassis as provided by OEM)

B. Air-ride and lumbar-support are approved optional features.

SEATS AND CRASH BARRIERS: PASSENGER'S

A. All seats shall have minimum depth of 15 inches.

B. In determining seating capacity of bus, allowable average rump width shall be:

1. 13 inches where 3-3 seating plan is used.

2. 15 inches where 3-2 seating plan is used.

C. Seat, seat back cushion, and crash barrier shall be covered with a material having 42-ounce finished weight, 54 inches width and finished vinyl coating of 1.06 broken twill, or other material with equal tensile

strength, tear strength, seam strength, adhesion strength, resistance to abrasion, resistance to cold, and flex separation. Fire-blocking upholstery may be used.

D. Each seat leg shall be secured to the floor by a minimum of two bolts, washers and nuts, or flange-headed nuts.

E. All seat frames shall be fastened to the seat rail with two bolts, washers and nuts, or flange-headed nuts.

F. All buses shall have crash barriers.

G. Use of a flip-seat at any side emergency door location in conformance with FMVSS 222, including required aisle width to side door, is acceptable. Any flip-seat shall be free of sharp projections on the underside of the seat bottom. The underside of the flip-seat bottom shall be padded or contoured to reduce the possibility of snagged clothing or injury during use. Flip-seats shall be constructed to prevent passenger limbs from becoming entrapped between the seat back and the seat bottom when in the upright position. The seat bottom shall be designed to rise to a vertical position automatically when not occupied.

STEERING WHEEL

See page 14, Chassis Requirements.

STEPS

A. The first step at service door shall be not less than 10 inches and not more than 16 inches from ground, based on standard chassis specifications.

B. Service door entrance shall be equipped with a two-step step-well for A and B type buses, or three-step step-well for C and D type buses. Risers in each case shall be approximately equal. When plywood floor is used on steel, differential may be increased by thickness of plywood used. Risers shall not exceed 10 inches.

C. Steps shall be enclosed to prevent accumulation of ice and snow.

D. Steps shall not protrude beyond side body line.

E. Heated rubber steps are optional.

F. Step assist: See HANDRAIL, Page 24.

STEP TREADS

A. All steps, including floor line platform area, shall be covered with 3/16-inch rubber floor covering or other materials equal in wear resistance and abrasion resistance to top-grade rubber.

B. Metal back of tread, minimum 24-gauge cold rolled steel, shall be permanently bonded to ribbed rubber; grooved design shall be such that said grooves run at a 90-degree angle to long dimension of step tread.

C. The 3/16-inch ribbed step tread shall have a 1.5" white nosing as integral piece without any joint. The 3/16 inch floor line platform edge shall have a 1.5" white nosing rubber strip.

D. Rubber portion of step treads shall have the following characteristics:

1. Special compounding for good abrasion resistance and high coefficient of friction.
2. Flexibility so that it can be bent around a .5" mandrel at 130 degrees Fahrenheit and at 20 degrees without breaking, cracking, or developing minute cracks on the surface.
3. Show a durometer hardness of 85 to 95.

STIRRUP STEPS

There shall be at least one folding stirrup step or recessed foothold and suitably located handles on each side of the front of the body for easy accessibility for cleaning the windshield and lamps except when windshield and lamps are easily accessible from the ground. Steps are permitted in or on the front bumper in lieu of the stirrup steps, if the windshield and lamps are easily accessible for cleaning from that position (Exception: Type A and B cutaway vehicles). Stirrup steps are not allowed on the rear bumper.

STOP SIGNAL ARM

A. Stop signal arm shall meet the applicable requirements of FMVSS 131. The arm shall be of an octagonal shape with white letters and border on a red background, and shall be of a reflective material meeting U.S. Department of Transportation FHWA FP-85 Type 2A or Type 3A. Flashing strobe lights on stop arm shall be connected to the red alternately flashing signal lamp circuits. The stop signal shall be vacuum, electric, or air operated. Arm shall be automatically operated when red warning lights are activated.

B. The stop signal arm shall be mounted outside the bus body near the driver on the left side immediately below the driver's window. An additional stop arm, mounted at the rear of the bus, on the driver's side, is permissible.

C. L.E.D. is optional in lieu of a strobe light.

STORAGE COMPARTMENT (Optional)

A. Storage compartments are optional.

B. A container of adequate strength and capacity may be provided for tools, tire chains, or tow chains. Such storage container may be located either inside or outside the passenger compartment. If located inside, it shall have a cover (seat cushion may not serve this purpose) capable of being securely latched and be fastened to the floor convenient to either the service or emergency door.

SUN SHIELD

An interior adjustable transparent sun shield not less than 6" x 30" for Type B, C, and D vehicles, with a finished, padded edge, shall be installed in a position convenient for use by driver. It shall be fully adjustable. Type A: cutaway shall be OEM standard.

TOW HOOKS

Two front and two rear heavy-duty, frame-mounted tow hooks shall be furnished on all Type B, C, and D buses. Tow hooks must not project beyond the front or rear bumpers. The front tow hooks shall be furnished by the chassis manufacturer, and the rear tow hooks furnished by the body manufacturer on Type C buses. Front and rear tow hooks shall be furnished by the body manufacturer on Type B, and D buses.

TRACTION ASSISTING DEVICES (Optional)

- A. When used, sanders shall:
 - 1. Be of hopper cartridge-valve type.
 - 2. Have metal hopper with all interior surfaces treated to prevent condensation.
 - 3. Be of at least 100-pound (grit) capacity.
 - 4. Have cover on filler opening of hopper that screws into place, sealing unit airtight. Filling to be accomplished from outside the bus body.
 - 5. Have discharge tubes extending under fender to front of each rear wheel.
 - 6. Have no-clogging discharge tubes with slush-proof, non-freezing rubber nozzles.
 - 7. Be operated by electric switch with pilot light mounted on instrument panel.
 - 8. Be exclusively driver-controlled.
 - 9. Have a gauge to indicate hoppers need refilling when they are down to one-quarter full.
- B. Automated traction chains may be installed.

TRASH CONTAINER AND HOLDING DEVICE

When used, the trash container shall:

- A. Be of Underwriters' Laboratories, Inc. (UL) classified fire-resistant polyethylene or equivalent material.
- B. Be no larger than 14-quart capacity.
- C. Be secured by a holding device that is designed to prevent movement and to allow easy removal.
- D. Be installed in an accessible location in the driver's compartment while not obstructing passenger use of the service door.

UNDERCOATING

A. Entire underside of bus body, including floor sections, cross member, and below floor line side panels, shall be coated with rust-proofing compound for which compound manufacturer has issued notarized certification of compliance to bus body builder that compound meets or exceeds all performance and qualitative requirements of paragraph 3.4 of *Federal Specification TT-C-520b* using modified test procedures* for the following requirements:

- 1. Salt spray resistance--pass test modified to five percent salt and 1,000 hours.
- 2. Abrasion resistance--pass.
- 3. Fire resistance--pass.

*Test panels are to be prepared in accordance with paragraph 4 6.12 of TT-C-520b with modified procedure requiring that tests be made on a 48-hour air-cured film at thickness recommended by compound manufacturer.

B. Undercoating compound shall be applied with suitable airless or conventional spray equipment to recommended film thickness and shall show no evidence of voids in cured film.

VENTILATION

A. Auxiliary Fans (Optional)

1. Auxiliary fans shall be placed in locations where they can be adjusted to their maximum effectiveness.

2. These fans shall be approximately six inches in diameter and two-speed.

3. The blades of the fans shall be covered with a protective cage. Each of these fans shall be controlled by a separate switch.

B. Body shall be equipped with a suitable, controlled ventilating system of sufficient capacity to maintain proper quantity of air under operating conditions without opening of windows except in extremely warm weather.

C. Static-type, non-closable exhaust ventilation shall be installed in low-pressure area of roof.

D. Power roof vent fans may be installed as an option.

If power roof vent fans are required they shall be two-speed electric type with a switch for each fan that is supplied. The roof fan ventilation opening shall be provided with an iris-type closing mechanism to provide for shutting off the air flow in inclement weather. TranSpec power vent fans are also acceptable.

E. Air conditioning is optional.

VIDEO CAMERAS

Video cameras are optional. It is recommended that a sign be placed near the camera to let passengers know that a video camera may be in operation and that they may be under surveillance.

WHEEL-HOUSING

A. The wheel-housing opening shall allow for easy tire removal and service, without jacking up the body.

B. The inside height of the wheel-housing above the floor line shall not exceed 12 inches. All wheel-housings shall be rubber covered.

C. The wheel-housing shall provide clearance for installation and use of tire chains on dual power-driving wheels.

D. No part of a raised wheel-housing shall extend into the emergency door opening.

WINDOWS

A. The glass used in the windshield shall be AS-1 standard. Side windows and all doors shall be at least AS-2 standard, and rear windows shall be at least AS-3 standard. All windows shall be mounted so the monogram is visible.

B. Each full side window, other than emergency exits designated to comply with FMVSS 217, shall provide an unobstructed emergency opening of at least 9" but not more than 13" high and at least 22" wide, obtained by lowering window. One side window on each side of the bus may be less than 22" wide.

C. Optional tinted and/or frost-free glass may be installed in all doors, windows, and windshields consistent with federal, state, and local regulations.

WINDSHIELD WASHERS

A windshield washer system shall be provided.

WINDSHIELD WIPERS

A. A windshield wiping system, two-speed or more, shall be provided.

B. The wipers shall be operated by one or more air or electric motors of sufficient power to operate wipers. If one motor is used the wiper shall work in tandem to give full sweep of windshield. If more than one motor is used, each motor shall have a separate switch.

WIRING

A. All wiring shall conform to current standards of the Society of Automotive Engineers.

B. Circuits: Wiring shall be arranged in circuits as required with each circuit protected by a fuse or circuit breaker. A system of color and number coding shall be used. Wiring shall be arranged in at least six regular circuits, as follows:

1. Head, tail, stop (brake), and instrument panel lamps.
2. Clearance and step-well lamps (step-well lamp shall be actuated when service door is opened).
3. Dome lamp.
4. Ignition and emergency door signal.
5. Turn signal lamps.
6. Alternately flashing signal lamps.

C. Any of the above combination circuits may be subdivided into additional independent circuits.

D. Whenever heaters and defrosters are used, at least one additional circuit shall be installed.

E. The bus body electrical system shall be equipped with a continuous duty solenoid switch operated by the ignition switch that cuts off the electrical power to most body circuits such as heaters, dome lights, etc. when the ignition switch is turned to the "off" position.

F. Whenever possible, all other electrical functions (such as sanders and electric windshield wipers) shall be provided with independent and properly protected circuits.

G. Each body circuit shall be coded by number or letter and color on a diagram of circuits and shall be attached to the body in a readily accessible location.

H. The entire electrical system of the body shall be designed for the same voltage as the chassis on which the body is mounted.

I. All wiring shall have an amperage capacity equal to or exceeding the designed load. All wiring splices are to be done at accessible locations and noted as splices on wiring diagram.

J. A body wiring diagram of easily readable size shall be furnished with each bus body or affixed in an area convenient to the electrical accessory control panel.

K. Body power wire shall be attached to a special terminal on the chassis.

L. All wires passing through metal openings shall be protected by a grommet or loom.

M. Wires not enclosed within body shall be fastened securely at intervals of not more than 18 inches. All joints shall be soldered or joined by equally effective connectors.

STANDARDS FOR SPECIALLY EQUIPPED SCHOOL BUSES

INTRODUCTION

A. Equipping buses to accommodate students with special needs is discretionary depending upon the needs of the passengers. While one bus may be fitted with a lift, another may have seat belts installed to secure child seats. Buses so equipped are not to be considered a separate class of school bus, but simply a regular school bus which is equipped for special accommodations.

B. The specifications in this section are intended to be supplementary to specifications in the chassis and body sections. In general, specially equipped buses shall meet all the requirements of the preceding sections plus those listed in this section. It is recognized by the entire industry that the field of special transportation is characterized by varied needs for individual cases and by a rapidly emerging technology for meeting these needs. A flexible, "common-sense" approach to the adoption and enforcement of specifications for these vehicles is therefore prudent.

C. As defined by Code of Federal Regulations 49 CFR § 571.3, "Bus means a motor vehicle with motive power, except a trailer, designed for carrying more than 10 persons" (11 or more including the driver). This definition also embraces the more specific category, school bus. Vehicles with 10 or fewer passenger positions (including the driver) cannot be classified as buses. For this reason, the federal vehicle classification multipurpose passenger vehicle (49 CFR § 571.3), or MPV, must be used by manufacturers for these vehicles in lieu of the classification "school bus". This classification system, while requiring compliance with a less stringent set of federal standards for MPVs, does not preclude state or local agencies or these national standards from requiring compliance of school bus-type MPVs with the more stringent federal standards for school buses.

D. The following standards address modifications as they pertain to school buses that, with standard seating arrangements prior to modification, would accommodate more than 10 persons (11 or more including the driver). If the addition of a power lift, mobile seating device positions, or other modifications reduces the capacity such that vehicles become MPVs, the intent of these standards is to require these vehicles to meet the same standards they would have had to meet prior to such modifications, and such MPVs are included in all references to school buses and requirements for school buses which follow.

DEFINITION

A specially equipped school bus is any school bus which is designed, equipped, or modified to accommodate students with special needs.

GENERAL REQUIREMENTS

A. School buses designed for transporting students with special transportation needs shall comply with Federal Motor Vehicle Safety Standards applicable to their GVWR category.

B. Any school bus to be used for the transportation of children who are confined to a wheelchair or other mobile positioning device, or who require life support equipment which prohibits use of the regular service entrance, shall be equipped with a power lift, unless a ramp is needed for unusual circumstances related to passenger needs.

AISLES

All school buses equipped with a power lift shall provide a 30" aisle leading from any wheelchair/mobility aid position to at least one emergency door and the lift area.

COMMUNICATIONS

All school buses which are used to transport individuals with disabilities should be equipped with a two way electronic voice communication system that can be used at any point in the vehicle's route. Where no such service exists, vehicles would be exempt.

GLASS

Tinted glazing may be installed in all doors, windows, and windshields consistent with federal, state, and local regulations.

IDENTIFICATION

Buses with power lifts used for transporting individuals with disabilities may display below the window line the International Symbol of Accessibility. Such emblems shall be white on blue background, shall not exceed 12 inches in size, and shall be of a high-intensity reflectorized material meeting U. S. Department of Transportation FHWA FP-85 Standards.

PASSENGER CAPACITY RATING

In determining the passenger capacity of a school bus for purposes other than actual passenger load (i.e., vehicle classifications, or various billing/reimbursement models), any location in a school bus intended for securement of an occupied wheelchair/mobility aid during vehicle operations may be regarded as four designated seating positions. Similarly, each lift area may be regarded as four seating positions.

POWER LIFTS AND RAMPS

A. Power lift shall be located on the right side of the bus body when not extended. Exception: The lift may be located on the left side of the bus if, and only if, the bus is primarily used to deliver students to the left side of one way streets.

B. Ramp

1. A ramp device may be used in lieu of a mechanical lift if the ramp meets all the requirements of the Americans with Disabilities Act (ADA) as found in 36 CFR § 1192.23(c) Vehicle ramp.

2. A ramp device that does not meet the specifications of ADA but does meet the specifications of paragraph C3 of this section may be installed and used when, and only when, a power lift system is not adequate to load and unload students having special and unique needs. A readily-accessible ramp may also be installed for emergency exit use. If stowed in the passenger compartment, the ramp must be properly secured and located away from general passenger contact. It must not obstruct or restrict any aisle or exit while in its stowed or deployed position.

C. Lift

1. All vehicles covered by this specification shall provide a level-change mechanism or boarding device (e.g., lift or ramp) complying with paragraph B or C of this section and sufficient clearances to permit a wheelchair or other mobility-aid user to reach a securement location.

2. Design load: The design load of the lift shall be at least 600 pounds. Working parts, such as cables, pulleys, and shafts, which can be expected to wear, and upon which the lift depends for support of the load, shall have a safety factor of at least six, based on the ultimate strength of the material. Non-working parts, such as platform, frame, and attachment hardware which would not be expected to wear, shall have a safety factor of at least three, based on the ultimate strength of the material.

3. Lift capacity: The lifting mechanism and platform shall be able to lift a minimum of 800 pounds.

4. Controls.

(a). Controls shall be provided that enable the operator to activate the lift mechanism from either inside or outside of the bus. The controls may be interlocked with the vehicle brakes, transmission, or door, or shall provide other appropriate mechanisms or systems, to ensure that the vehicle cannot be moved when the lift is not stowed and so the lift cannot be deployed unless the interlocks or systems are engaged. The lift shall deploy to all levels (i.e., ground, curb, and intermediate positions) normally encountered in the operating environment. Where provided, each control for deploying, lowering, raising, and stowing the lift and lowering the roll-off barrier, shall be of a momentary contact type requiring continuous manual pressure by the operator and shall not allow improper lift sequencing when the lift platform is occupied. The controls shall allow reversal of the lift operation sequence, such as raising or lowering a platform that is part way down, without allowing an occupied platform to fold or retract into the stowed position.

(b). Exception: Where the lift is designed to deploy with its long dimension parallel to the vehicle axis and which pivots into or out of the vehicle while occupied (i.e., "rotary lift"), the requirements of this paragraph prohibiting the lift from being stowed while occupied shall not apply if the stowed position is within the passenger compartment and the lift is intended to be stowed while occupied.

5. Emergency Operation: The lift shall incorporate an emergency method of deploying, lowering to ground level with a lift occupant, and raising and stowing the empty lift if the power to the lift fails. No emergency method, manual or otherwise, shall be capable of being operated in a manner that could be hazardous to the lift occupant or to the operator when operated according to the manufacturer's instructions and shall not permit the platform to be stowed or folded when occupied, unless the lift is a rotary lift and is intended to be stowed while occupied. No manual emergency operation shall require more than two minutes to lower an occupied wheelchair to ground level.

6. Power or Equipment Failure: Platforms stowed in a vertical position, and deployed platforms when occupied, shall have provisions to prevent their deploying, falling, or folding any faster than 12 inches/second or their dropping of an occupant in the event of a single failure of any load-carrying component.

7. Platform Barriers: The lift platform shall be equipped with barriers to prevent any of the wheels of a wheelchair or mobility aid from rolling off the platform during its operations. A moveable barrier or inherent design feature shall prevent a wheelchair or mobility aid from rolling off the edge closest to the vehicle until the platform is in its fully-raised position. Each side of the lift platform which extends beyond the vehicle in its raised position shall have a barrier a minimum 1 ½ inches high. Such barriers shall not interfere with maneuvering into or out of the aisle. The loading-edge barrier (outer barrier), which functions as a loading ramp when the lift is at ground level, shall be sufficient when raised or closed, or a supplementary system shall be provided, to prevent a power wheelchair or mobility aid from riding over or defeating it. The outer barrier of the lift shall automatically raise or close, or a supplementary system shall automatically engage, and remain raised, closed, or engaged at all times that the platform is more than 3 inches above the roadway or sidewalk and the platform is occupied. Alternatively, a barrier or system may be raised, lowered, opened, closed, engaged, or disengaged by the lift operator, provided an interlock or inherent design feature prevents the lift from rising unless the barrier is raised or closed or the supplementary system is engaged.

8. Platform Surface: The platform surface shall be free of any protrusions over 1/4" high and shall be slip resistant. The platform shall have a minimum clear width of 28 1/2" at the platform, a minimum clear width of 30" measured from two inches above the platform surface to 30" above the surface of the platform, and a minimum clear length of 48" measured from 2" above the surface of the platform.

9. Platform Gaps: Any openings between the platform surface and the raised barriers shall not exceed 5/8" in width. When the platform is at vehicle floor height with the inner barrier (if applicable) down or retracted, gaps between the forward lift platform edge and the vehicle floor shall not exceed 1/2" horizontally and 5/8" vertically. Platforms on semi-automatic lifts may have a hand hold not exceeding 1 1/2" x 4 1/2" located between the edge barriers.

10. Platform Entrance Ramp: The outboard entrance ramp or loading-edge barrier used as a ramp and the transition plate from the inboard edge of the platform to the vehicle floor shall not exceed a slope of 1:8, measured on level ground, for a maximum of 3", and the transition from roadway or sidewalk to ramp may be vertical without edge treatment up to 1/4". Thresholds between 1 1/4" and 1/2" high shall be beveled with a slope no greater than 1:2.

11. Platform Deflection: The lift platform (not including the entrance ramp) shall not deflect more than three degrees (exclusive of vehicle roll or pitch) in any direction between its unloaded position and its position when loaded with 600 pounds applied through a 26 inch by 26 inch test pallet at the centroid of the platform.

12. Platform Movement: No part of the platform shall move at a rate exceeding 6 inches/second during lowering and lifting an occupant, and shall not exceed 12 inches/second during deploying or stowing. This requirement does not apply to the deployment or stowage cycles of lifts that are manually deployed or stowed. The maximum platform horizontal and vertical acceleration when occupied shall be 0.3 g.

13. Boarding Direction: The lift shall permit both inboard and outboard facing of wheelchair and mobility aid users.

14. Use by Standees: Lifts shall accommodate persons using walkers, crutches, canes or braces, or who otherwise have difficulty using steps. The platform may be marked to indicate a preferred standing position.

15. Handrails: Platforms on lifts shall be equipped with handrails on two sides, which move in tandem with the lift, and which shall be graspable and provide support to standees throughout the entire lift operation. Handrails shall have a usable component at least eight inches long with the lowest portion a minimum of 30" above the platform and the highest portion a maximum of 38" above the platform. The handrails shall be capable of withstanding a force of 100 pounds concentrated at any point on the handrail without permanent deformation of the rail or its supporting structure. The handrail shall have a cross-sectional diameter between 1 1/4" and 1 1/2" or shall provide an equivalent grasping surface, and have eased edges with corner radii of not less than 1/8". Handrails shall be placed to provide a minimum of 1 1/2" knuckle clearance from the nearest adjacent surface. Handrails shall not interfere with wheelchair or mobility aid maneuverability when entering or leaving the vehicle.

16. Circuit Breaker: A resettable circuit breaker shall be installed between power source and lift motor if electrical power is used. It shall be located as close to the power source as possible, but not within the passenger/driver compartment.

17. Excessive Pressure: Lift design shall prevent excessive pressure that could damage the lift system when the platform is fully lowered or raised, or that could jack the vehicle.

18. Documentation: The following information shall be provided with each vehicle equipped with a lift:

(a). A phone number where information can be obtained about installation, repair, and parts. (Detailed written instructions and a parts list shall be available upon request.)

(b). Detailed instructions regarding use of the lift are readily visible when the lift door is open, including a diagram showing the proper placement and positioning of wheelchair/mobility aids on lift.

19. Training Materials: The lift manufacturer shall make available training materials to ensure the proper use and maintenance of the lift. These may include instructional videos, classroom curriculum, system test results, or other related materials.

20. Identification and Certification: Each lift shall be permanently and legibly marked or incorporate a non-removable label or tag which states that it conforms to all applicable requirements of the current National Standards for School Buses. In addition, the lift manufacturer, or an authorized representative, upon request of the original titled purchaser, shall provide a notarized Certificate of Conformance, either original or photocopied, which states that the lift system meets all the applicable requirements of the current National Standards for School Buses.

D. Vehicle Ramp

1. If a ramp is used, it shall be of sufficient strength and rigidity to support the special device, occupant, and attendant(s). It shall be equipped with a protective flange on each longitudinal side to keep special device on the ramp.

2. Floor of ramp shall be constructed of non-skid material.

3. Ramp shall be equipped with handles and be of weight and design to permit one person to put ramp in place and return it to its storage place.

4. Ramps installed in raised floor buses by manufacturers may be used for emergency evacuation purposes. They shall not be used as a substitute for a lift when a lift is capable of servicing the need.

REGULAR SERVICE ENTRANCE

A. On power-lift equipped vehicles, step shall be the full width of the step-well, excluding the thickness of doors in open position.

B. A suitable device shall be provided to assist passengers during entry or egress. This device shall allow for easy grasping or holding and shall have no openings or pinch points which might entangle clothing, accessories or limbs. If a tubular handrail is installed, it shall pass the 1/2" nut and string test.

C. In Type C and D vehicles, there shall be three step risers of equal height.

SEATING ARRANGEMENTS

Flexibility in seat spacing to accommodate special devices shall be permitted to meet passenger requirements. All seating shall be forward-facing to conform to FMVSS 222.

SECUREMENT DEVICES

A. On power-lift equipped vehicles, seat frames may be equipped with attachments or devices to which belts, securement harnesses, or other devices may be attached. Attachment framework or anchorage devices, if installed, shall conform with FMVSS 210.

B. Seat belt assemblies, if installed, shall conform to FMVSS 209.

C. Child securement systems, which are used to facilitate the transportation of children who in other modes of transportation would be required to use a child, infant, or booster seat, shall conform to FMVSS 213.

SECUREMENT SYSTEM FOR WHEELCHAIR/MOBILITY AID AND OCCUPANT

For purposes of better understanding the various aspects and components of this section, the term *securement* or phrase *securement system* is used exclusively in reference to the device(s) which secure the wheelchair/mobility aid. The terms *occupant securement* or the phrase *occupant securement system* are used exclusively in reference to the device(s) used to secure the occupant of the wheelchair/mobility aid. The phrase *total securement system* is used to refer to the total system which secures both the wheelchair/mobility aid and the occupant.

A. Securement System: General

1. The Wheelchair/Mobility Aid Securement and Occupant Restraint System shall be designed, installed, and operated to accommodate passengers in a forward-facing orientation within the bus and shall comply with all applicable requirements of FMVSS 222. Gurney-type devices shall be secured parallel to the side of each bus.

2. The securement and restraint system, including the system track, floor plates, pockets, or other anchorages shall be provided by the same manufacturer, or be certified to be compatible by manufacturers of all equipment/systems used.

3. When a wheelchair/mobility aid securement device and an occupant securement share a common anchorage, including occupant securement designs that attach the occupant securement to the securement device or the wheelchair/mobility aid, the anchorage shall be capable of withstanding the loads of both the securement device and occupant securement applied simultaneously, in accordance with FMVSS 222. (See § 2 and § 3 of this section.)

4. When a wheelchair/mobility aid securement device (webbing or strap assembly) is shared with an occupant securement, the wheelchair/mobility aid securement device (webbing or strap assembly) shall be capable of withstanding a force twice the amount as specified in § 4.4(a) of FMVSS 209. (See § 2 and § 3 of this section.)

5. The bus body floor and sidewall structures where the securement system anchorages are attached shall have equal or greater strength than the load requirements of the system(s) being installed.

6. The occupant securement system shall be designed to be attached to the bus body either directly or in combination with the wheelchair/mobility aid securement system, by a method which prohibits the transfer of weight or force from the wheelchair/mobility aid to the occupant in the event of an impact.

7. When an occupied wheelchair/mobility aid is secured in accordance with the manufacturer's instructions, the securement system shall limit the movement of the occupied wheelchair/mobility aid to no more than two inches in any direction under normal driving conditions.

8. The securement system shall incorporate an identification scheme which shall allow for the easy identification of the various components and their functions. It shall consist of one of the following, or combination thereof:

(a). The wheelchair/mobility aid securement (webbing or strap assemblies) and the occupant securement belt assemblies shall be of contrasting color or color shade.

(b). The wheelchair/mobility aid securement device (webbing or strap assemblies) and occupant securement belt assemblies shall be clearly marked to indicate the proper wheelchair orientation in the vehicle, and the name and location for each device or belt assembly, e.g., front, rear, lap belt, shoulder belt, etc.

9. All attachment or coupling devices designed to be connected or disconnected frequently shall be accessible and operable without the use of tools or other mechanical assistance.

10. All wheelchair securement systems and occupant securement hardware and components shall be free of sharp or jagged areas and shall be of a non-corrosive material or treated to resist corrosion in accordance with § 4.3(a) of FMVSS 209.

11. The securement system shall be located and installed such that when an occupied wheelchair/mobility aid is secured, it does not block access to the lift door or lift.

12. A device for storage of the securement system shall be provided. When the system is not in use, the storage device shall allow for clean storage of the system, keep the system securely contained within the passenger compartment, provide reasonable protection from vandalism, and enable the system to be readily accessed for use.

13. The entire securement system, including the storage device, shall meet the flammability standards established in FMVSS 302.

14. Each securement device (webbing or strap assembly) and occupant securement belt assembly shall be permanently and legibly marked or incorporate a non-removable label or tag which states that it conforms to all applicable FMVSS requirements, as well as the current National Standards for School Buses. In addition, the system manufacturer, or an authorized representative, upon request by the original titled purchaser, shall provide a notarized Certificate of Conformance, either original or photocopied, which states that the wheelchair/mobility aid securement and occupant restraint system meets all of the requirements as specified in FMVSS 222 and the current National Standards for School Buses.

15. The following information shall be provided with each vehicle equipped with a wheelchair securement and occupant securement system:

(a). A phone number where information can be obtained about installation, repair, and parts. Detailed written instructions and a parts list shall be available upon request.

(b). Detailed instructions regarding use, including a diagram showing the proper placement of wheelchair/mobility aids and the positioning of securement devices and occupant securement, including correct belt angles.

16. The system manufacturer shall make training materials available to ensure the proper use and maintenance of the wheelchair/mobility aid securement and occupant securement system. These may include instructional videos, classroom curriculum, system test results, or other related materials.

B. Wheelchair/Mobility Aid Securement System

1. Each wheelchair securement system location shall consist of a minimum of four anchorage points. A minimum of two anchorage points shall be located in front of the wheelchair/mobility aid and a minimum of two anchorage points shall be located in the rear. The securement anchorages shall be attached to the floor of the vehicle and shall not interfere with passenger movement or present any hazardous condition.

2. Each wheelchair securement system location shall have a minimum clear floor area of 30" by 45". Additional floor area may be required for some applications. Consultation between the user and the manufacturer is recommended to ensure adequate area is provided.

3. The wheelchair securement system shall secure common wheelchair/mobility aids and shall be able to be attached easily by a person having average dexterity and who is familiar with the system and wheelchair/mobility aid.

4. As installed, each wheelchair securement anchorage shall be capable of withstanding a minimum force of 3,000 pounds (13,344 Newtons) when applied as specified in FMVSS 222. When more than one securement device share a common anchorage, the anchorage shall be capable of withstanding the force indicated above, multiplied by the number of securement devices sharing that anchorage.

5. Each securement device, if incorporating webbing or a strap assembly, shall comply with the requirements for type 1 safety-belt systems, in accordance with §4.2m, §4.3, and §4.4(a) of FMVSS 209.

6. The wheelchair securement system shall secure the wheelchair/mobility aid in such a manner that the attachments or coupling hardware will not become detached when any wheelchair/mobility aid component deforms, when one or more tires deflate, and without intentional operation of a release mechanism (e.g., a spring clip on a securement hook).

7. Each securement device (webbing or strap assembly) shall be capable of withstanding a minimum force of 2,500 pounds when tested in accordance with FMVSS 209.

8. Each securement device (webbing or strap assembly) shall provide a means of adjustment, of manufacturer's design, to remove slack from the device or assembly.

C. Occupant Securement System

1. Type 2A occupant securement system which meets all applicable requirements of FMVSS 209 and 210 shall provide for restraint of the occupant.

2. The occupant securement system shall be made of materials which do not stain, soil, or tear an occupant's clothing, and which are resistant to water damage and fraying.

3. Each securement system location shall have not less than one anchorage, of manufacturer's design, for the upper end of the upper torso restraint. The anchorage for each occupant's upper torso restraint shall be capable of withstanding a minimum force of 1,500 pounds (6,672 Newtons) when applied as specified in FMVSS 222.

4. Each wheelchair/mobility aid location shall have not less than two floor anchorages for the occupant pelvic and the connected upper torso restraint.

(a). Each floor anchorage shall be capable of withstanding a minimum force of 3,000 pounds (13,344 Newtons) when applied as specified in FMVSS 222.

(b). When more than one occupant securement shares a common anchorage, the anchorage shall be capable of withstanding a minimum force of 3,000 pounds (13,344 Newtons) multiplied by the number of occupant restraints sharing the common anchorage in accordance with FMVSS 222.

5. Each floor and wall anchorage which secures the occupant securement to the vehicle and which is not permanently attached shall be of a "positive latch" design, and shall not allow for any accidental disconnection.

D. Dynamic Testing SAE Version (Alternate)

1. The wheelchair/mobility aid securement and occupant securement system shall be subjected to, and successfully pass, a dynamic sled test at a minimum impact speed/deceleration of 30 mph/20gs.

2. The dynamic test shall be performed by experienced personnel using an impact simulator with proven ability to provide reliable, accurate, and repeatable test results.

3. The dynamic test shall be performed in accordance with the procedures set forth in Appendix A of SAE J-2249 "Test for Frontal Impact Crash Worthiness."

4. The wheelchair/mobility aid used for testing purposes shall be a rigid, reusable surrogate wheelchair that complies with the requirements of Appendix D of SAE J2249 "Specification for Surrogate Wheelchair."

5. The dynamic test shall be performed using system assemblies, components, and attaching hardware which are identical to the final installation in type, configuration, and positioning. The body structure at the anchorage points may be simulated for the purpose of the sled test.

6. When tested, the wheelchair/mobility aid securement and occupant securement system shall pass the criteria specified in Section 6.2 of SAE J2249 "Performance Requirements of Frontal Sled Impact Test." The following is an abridged summary of the criteria (See Appendix for complete criteria):

(a). Retain the test dummy in the test wheelchair and on the test sled with the test wheelchair in an upright position.

(b). Not show any fragmentation or complete separation of any load-carrying part.

(c). Not allow the horizontal excursions of the test dummy and the test wheelchair to exceed specified limits.

(d). Prevent the test wheelchair from imposing forward loads on the test dummy.

(e). Allow removal of the test dummy and the test wheelchair, subsequent to the test, without the use of tools.

SPECIAL LIGHTS

Doorways in which lifts are installed shall have, when lift is to be used, at least two foot-candles of illumination measured on the floor of the bus immediately adjacent to the lift, and on the lift, when deployed at the vehicle floor level. Exterior light shall be provided to illuminate the lift area.

SPECIAL SERVICE ENTRANCE

A. Power lift equipped bodies shall have a special service entrance to accommodate the power lift. (Exception: If the lift is designed to operate within the regular service entrance, and is capable of stowing such that the regular service entrance is not blocked in any way, and that persons entering or exiting the bus are not impeded in any way, a special service entrance shall not be required.)

B. The special service entrance and door shall be located on the right side of the bus and shall be designed so as not to obstruct the regular service entrance. (Exception: A special service entrance and door may be located on the left side of the bus if, and only if, the bus is primarily used to deliver students to the left side of one way streets and its use is limited to that function.)

C. The opening may extend below the floor through the bottom of the body skirt. If such an opening is used, reinforcements shall be installed at the front and rear of the floor opening to support the floor and give the same strength as other floor openings.

D. A drip molding shall be installed above the opening to effectively divert water from entrance.

E. Door posts and headers from entrance shall be reinforced sufficiently to provide support and strength equivalent to the areas of the side of the bus not used for special service entrance.

SPECIAL SERVICE ENTRANCE DOORS

A. A single door or double doors may be used for the special service entrance.

B. A single door shall be hinged to the forward side of the entrance unless doing so would obstruct the regular service entrance. If, due to the above condition, the door is hinged to the rearward side of the doorway, the door shall utilize a safety mechanism which will prevent the door from swinging open should the primary door latch fail. If double doors are used, the system shall be designed to prevent the door(s) from being blown open by the wind resistance created by the forward motion of the bus, and/or incorporate a safety mechanism to provide secondary protection should the primary latching mechanism(s) fail.

C. All doors shall have positive fastening devices to hold doors in the open position.

D. All doors shall be weather sealed.

E. When manually-operated dual doors are provided, the rear door shall have at least a one-point fastening device to the header. The forward-mounted door shall have at least three-point fastening devices. One shall be to the header, one to the floor line of the body, and the third shall be into the rear door. The door and hinge mechanism shall be of a strength that is greater than or equivalent to the emergency exit door.

F. Door materials, panels, and structural strength shall be equivalent to the conventional service and emergency doors. Color, rub-rail extensions, lettering, and other exterior features shall match adjacent sections of the body.

G. Each door shall have windows set in rubber which are visually similar in size and location to adjacent non-door windows. Glazing shall be of same type and tinting (if applicable) as standard fixed glass in other body locations.

H. Door(s) shall be equipped with a device that will actuate a flashing red signal located in the driver's compartment when door(s) is not securely closed and ignition is in the "on" position. An audible signal is optional.

I. A switch shall be installed so that the lifting mechanism will not operate when the lift platform door(s) is closed.

J. Special service entrance doors shall be equipped with padding at the top edge of the door opening. Pad shall be at least three inches wide and one inch thick and extend the full width of the door opening.

K. The special service entrance shall have a three-point latching bar.

SUPPORT EQUIPMENT AND ACCESSORIES

A. Each bus which is set up to accommodate wheelchair/mobility aids or other assistive or restraint devices which utilize belts, shall contain at least one belt cutter properly secured in a location within reach of the driver while belted into the driver's seat. The belt cutter shall be durable and designed to eliminate the possibility of the operator or others being cut during use.

B. Special equipment or supplies which are used on the bus for mobility assistance, health support, or safety purposes shall meet any local, federal, or engineering standards which may apply, including proper identification. Equipment which may be used for these purposes includes, but is not limited to the following:

1. Wheelchairs and other Mobile Seating Devices. (See section on Securement System for Mobile Seating Devices/Occupant, page 46.)

2. Crutches, Walkers, Canes, and Other Ambulating Devices.

3. Medical Support Equipment. This may include respiratory devices such as oxygen bottles (which should be no larger than 22 cubic feet for liquid oxygen and 38 cubic feet for compressed gas), or ventilators. Tanks and valves should be located and positioned to protect them from direct sunlight, bus heater vents, or other heat sources. Other equipment may include intravenous and fluid-drainage apparatus.

C. All portable equipment and special accessory items, including the equipment listed above, shall be secured at the mounting location to withstand a pulling force of five times the weight of the item, or shall be retained in an enclosed, latched compartment. The compartment shall be capable of withstanding forces applied to its interior equal to five times the weight of its contents without failure of the box's integrity and securement to the bus. Exception: If these standards provide specific requirements for securement of a particular type of equipment (e.g., wheelchairs), the specific standard shall prevail.

TECHNOLOGY AND EQUIPMENT

A. It is the intent of these standards to accommodate new technologies and equipment which will better facilitate the transportation of students with special needs. When a new technology, piece of equipment, or component is desired to be applied to the school bus, and it meets the following criteria, it may be acceptable:

1. It (the technology, equipment, or component) shall not compromise the effectiveness or integrity of any major safety system, unless it completely replaces the system. (Examples of safety systems include, but are not limited to, compartmentalization, the eight-light warning system, emergency exit opportunity, and the uncluttered yellow color scheme.)

2. It shall not diminish the safe environment of the interior of the bus.

3. It shall not create additional risk to students who are boarding or exiting the bus or are in or about the school bus loading zone.

B. Prior to use, specifications for such equipment shall be submitted to the School Bus Standards Committee for approval.

ALTERNATIVE FUELS

These standards are designed to be used as an overview of the alternative fuels being utilized for school transportation. The standards are not designed to replace current applicable federal, state, manufacturing, or safety standards that may exceed requirements within this standard. There will be advancements in engineering and improvements in equipment fabrication methods and operating practices that differ from those specifically called for in these standards. Such deviations or improvements may provide extra safety and may meet the intent of and be compatible with these standards. School districts or contractors wishing to purchase alternative fuel school buses should use this section only as a starting point. More detailed specifications, including specific design and performance criteria and safety standards, should be researched by prospective purchasers of alternative fuel school buses.

GENERAL REQUIREMENTS

- A. Chassis shall meet all standards previously mentioned in BUS CHASSIS REQUIREMENTS.
- B. Chassis shall meet all applicable FMVSS standards.
- C. Fuel system integrity shall allow zero (0) leakage when impacted by a mobile barrier in accordance with test conditions specified in FMVSS 301 or FMVSS 303, as applicable.
- D. All alternative fuel buses shall travel a loaded range of not less than 200 miles, except those powered by electricity which shall travel not less than 80 miles.
- E. All materials and assemblies used to transfer or store alternative fuels shall be installed outside the passenger/driver compartment.
- F. The total weight shall not exceed the GVWR when loaded to rated capacity.
- G. All fueling equipment shall be designed specifically for fueling motor vehicles and shall be certified by the manufacturer as meeting all applicable federal, state, and industry standards.
- H. All on-board fuel-supply containers shall meet all appropriate requirements of the American Society of Mechanical Engineers (ASME) code, the DOT regulations, or applicable FMVSS and National Fire Protection Association (NFPA) standards.
- I. All fuel-supply containers shall be securely mounted to withstand a static force of eight times their weight in any direction.
- J. All safety devices that may discharge to the atmosphere shall be vented to the outside of the vehicle. The discharge line from the safety relief valve on all school buses shall be located in a manner appropriate to the characteristics of the alternative fuel. Discharge lines shall not pass through the passenger compartment.
- K. A positive, quick acting (1/4 turn) shut-off control valve shall be installed in the gaseous fuel supply lines as close to the fuel supply containers as possible. The controls for this valve shall be placed in a location easily operable from the exterior of the vehicle. The location of the valve control shall be clearly marked on the exterior surface of the bus.
- L. A grounding system shall be required for grounding of the fuel system during maintenance-related venting.
- M. Fuel systems using liquefied petroleum gas (LPG) shall comply with the NFPA Standard 58 "Liquefied Petroleum Gases Engine Fuel Systems" in effect at the time of installation.

COMPRESSED NATURAL GAS (CNG) APPLICATIONS

A. Original equipment manufacturers (OEMs) and conversion systems using compressed natural gas (CNG) shall comply with NFPA Standard 52 "Compressed Natural Gas Vehicular Fuel Systems" in effect at the time of installation.

B. All compressed natural gas (CNG) installations shall meet all applicable federal and state laws, standards, and requirements; National Fire Protection Association (NFPA) standards; American Society of Mechanical Engineers (ASME) and American Society for Testing and Materials (ASTM) codes; and industry safety requirements. In addition, CNG installations shall meet the requirements set forth in Section R714-400 of the *Utah Administrative Code*, "Compressed and Liquefied Gas Fuel Systems."

C. All devices used in the CNG system that may be subjected to container pressure shall be designed for the working pressure within a design safety factor of at least four and shall be plainly marked as such.

D. A certified mechanic shall inspect all fittings and attachments at least quarterly for leaks, wear, tightness, or undue stress.

E. CNG Tanks

1. All tanks shall be fabricated of steel, aluminum, or composite materials and be certified in accordance with U.S. Department of Transportation (DOT), Canadian Transport Commission (CTC), or ASME regulations to a service pressure of not less than 3,000 psi and a test burst pressure minimum of 5,000 psi be plainly marked with the words "CNG ONLY," and equipped with a DOT, CTC or ASME certified spring-loaded pressure relief valve plainly marked for discharge psi setting and discharge cubic feet per minute (cfm) capacity.

2. All tanks shall be directly secured to the main frame in such a manner as to prevent jarring loose, slipping, or rotating, and shall withstand a static force of eight times the weight of a fully pressurized tank with a maximum displacement of .5".

F. CNG Fuel Lines and Installation

1. Fuel lines shall be permanently secured at intervals of not more than two feet and shall be placed in such a manner as to minimize the possibility of damage due to vibration, strain, or wear.

2. Fuel lines passing through structural members shall be protected by rubber grommets or bulkhead fittings and follow the main frame channel wherever possible.

3. All fuel lines shall be approved stainless steel with a maximum working pressure of 3,000 psi, a minimum burst pressure of four times the working pressure, and shall be labeled as to the working pressure and CNG service.

4. An approved lock-off or solenoid valve, with filter, shall be provided in the fuel line at a point ahead of the inlet of the natural gas converter, designed to prevent the flow of fuel to the converter when the engine is not running. This may be accomplished by (a) an approved mechanical lock-off controlled by either the engine vacuum or oil pressure, or (b) an approved electric solenoid controlled by either a vacuum or oil pressure switch.

G. CNG Valves, Appurtenances, and Connections

1. All container valves, appurtenances, and connections shall be protected to prevent damage due to accidental contact with stationary or loose objects, mud, or ice and, to the extent possible, from damage due to vehicular accidents.

2. Relief valve discharge shall be directed so that any gas released will not impinge on the vehicle and so that the possibility of impingement on adjacent vehicles or persons is minimized. The vent hose shall be attached in such a manner that ice hanging from it will not detach it from its mounting.

3. Outlets shall be protected by caps, covers, or other means to keep water or dirt from collecting in the lines, thus restricting the flow of natural gas.

4. Each line and its connectors shall withstand the pressure caused by the discharge of vapor from a safety device in fully-open position.

H. Fuel Injection

Gas mixers, fuel injectors, and pressure regulators for CNG shall meet minimum design standards set forth in NFPA Pamphlet No. 52.

I. Fueling CNG vehicles

1. Fueling shall be done by personnel who have been trained and certified.
2. No passenger shall be on board during fueling.
3. Engine must be shut off during fueling.
4. No source of ignition shall be permitted within 10 feet of the vehicle being fueled.
5. Filling level shall not exceed 125 percent of service pressure.
6. Instructions shall be conspicuously posted at the fueling site.

CHARACTERISTICS OF ALTERNATIVE FUELS

For the purpose of these standards, alternative fuels refer to the specific fuels listed below. A brief description of each fuel and its advantages and disadvantages are shown. Also see Appendix C, Alternative Fuels Comparison Chart.

A. Methanol

Methanol, a liquid at normal ambient temperatures, is colorless, and is made primarily from natural gas or coal. Extensive experiments have been conducted with auto and truck engines powered by methanol. There are a number of urban transit bus fleets currently using methanol; California has experience with methanol as an alternative fuel for school buses through their School Bus Demonstration Project.

1. Advantages:

(a). The principal advantage to methanol is that the emissions produced are quite low in particulates and NOx.

(b). Another major advantage is that it mixes with gasoline and can be used as M85 which is 15% gasoline and 85% Methanol. Flexible fuel vehicles run on a blend of the two fuels.

(c). Methanol has a high cetane rating which assists diesel engine performance.

(d). Methanol is biodegradable and readily assimilates with water.

(e). Methanol burns smokeless.

(f). Methanol is a domestically-produced energy source.

2. Disadvantages:

(a). Methanol is corrosive, particularly to aluminum; engines and fuel systems specially designed to handle it use different materials, such as stainless steel.

(b). Methanol has less than half the power per equivalent gallon (BTU value) as that of diesel fuel. For an equivalent range, this requires storage tanks twice the size of diesel tanks.

(c). Methanol is quite toxic. Direct exposure to the human body has the potential of causing blindness and kidney failure. Since it is tasteless and colorless, it cannot be easily detected should it get into a water supply.

(d). Methanol combustion generates high amounts of formaldehyde, a potential cancer-causing substance. This can be offset with exhaust after-treatment, such as special catalytic converters.

(e). In its pure state, methanol burns with a colorless flame, so a fire is hard to see. In addition, it is highly volatile and has a relatively low flash point.

(f). The distribution system and infrastructure for methanol fueling are considerably less widespread than for gasoline and diesel.

B. Ethanol

Ethanol is a distilled agricultural alcohol product that is a liquid at normal ambient temperatures and is colorless. Corn is the current primary grain source. It has many of the same characteristics as methanol. Currently ethanol is used primarily in a mixture with gasoline, usually no more than 10 percent ethanol.

1. Advantages:

(a). Ethanol emissions are quite low in particulates and NO_x.

(b). Like methanol, ethanol readily mixes with gasoline.

(c). Ethanol is biodegradable and readily assimilates with water.

(d). Ethanol is less corrosive and less toxic than methanol.

(e). Ethanol is a domestically-produced energy source.

2. Disadvantages:

(a). The production process is extensive and the steps involved, i.e., planting, fertilizing, harvesting, shipping, and processing, consume nearly as much energy as is created.

(b). The energy output of ethanol, though higher than methanol, is still only about half that of diesel fuel, thus the range of ethanol powered vehicles is limited for a given fuel storage capacity.

(c). Ethanol emissions have some visible smoke.

(d). Ethanol produces formaldehyde, which can be offset with an exhaust after-treatment.

(e). The distribution system and infrastructure for ethanol fueling are considerably less widespread than for gasoline and diesel.

C. Clean diesel

Clean diesel was one of the alternative fuels approved in the Clean Air Act Amendments of 1990. The first step being undertaken is further refining to reduce sulfur content and hence the significant particulate emissions caused by sulfur. Further steps are being developed to add cetane boosters which increase efficient combustion. Additives are also being developed to reduce aromatic hydrocarbons in the exhaust.

1. Advantages:

(a). The additional processing costs are small, so clean diesel is cost effective.

(b). All diesel engines currently in service can use clean diesel without modification.

(c). The present systems for distribution of diesel fuel are unchanged and are fully usable with clean diesel.

(d). Clean diesel retains the low level of diesel fuel volatility. This makes it safer than many of the other alternatives.

(e). Clean diesel has a higher BTU value per gallon or equivalent gallon than any other alternative fuel, thus providing more engine efficiency as well as more vehicle range.

2. Disadvantages:

(a). Clean diesel is still relatively high in particulates and NOx.

(b). Clean diesel is a fossil fuel and, as such, requires dependence on foreign sources.

(c). As with all diesel fuels, starting is a problem when operating in cold weather conditions.

D. Reformulated gasoline

Reformulated Gasoline is a specially blended fuel with the following properties: a lower vapor pressure that reduces evaporation during operation and refueling, and more efficient combustion through the addition of high-octane oxygenates. Reformulated gasoline aromatic levels have been lowered, which provides fewer hydrocarbon tail-pipe emissions.

1. Advantages:

(a). Reformulated gasoline is compatible with all existing gasoline engines.

(b). The existing fuel-delivery infrastructure is unchanged by this change in fuel properties.

(c). Reformulated gasoline is a cost-effective alternative despite some additional refining costs.

2. Disadvantages:

(a). Currently there is insufficient oxygenate production, storage, and transportation to provide the oxygenate when and where it is needed.

(b). Like regular gasoline, reformulated gasoline has a lower caloric (BTU) value than diesel and, thus provides less engine efficiency than diesel and less range for a given fuel capacity.

(c). Reformulated gasoline is a fossil fuel and, as such, still requires dependence on foreign sources.

E. Compressed Natural Gas (CNG)

Natural gas is primarily methane as it comes from the well, and it burns quite cleanly in its unprocessed state. Natural gas has a higher ignition point (temperature) and a narrower fuel/oxygen mixture combustion range than other fuels. Energy is consumed in processing natural gas to achieve sufficient vehicle storage (i.e., compression or cryogenic processes). Compressed Natural Gas, or CNG, consists of mixtures of hydrocarbon gases and vapors, principally of methane (CH₄) in gaseous form, which is compressed for use as a vehicular fuel.

1. Advantages:

(a). Natural gas is readily available as a domestic energy source, is inexpensive, and has generally lower emissions than most other alternative fuels.

(b). CNG already is in use as a viable alternative for light-duty vehicles. The American Gas Association reports over 700,000 natural gas vehicles in operation in 38 countries.

(c). The cleaner burning minimizes carbon buildup, thus increasing oil change intervals and reducing maintenance.

2. Disadvantages:

(a). The pressure of CNG requires heavy storage tanks. The tanks are large even for short-range use. Those two factors reduce cargo capacity. Maintaining reasonable cargo capacity restricts tank size and limits range. Lower caloric (BTU) value per equivalent gallon than diesel also limits engine efficiency and vehicle range.

(b). The high pressure which the CNG fuel storage system must endure requires careful design and location on the vehicle, protection from damage, and periodic maintenance and upkeep. Periodic tank testing for structural safety is required, and replacement during the life cycle of the vehicle may be necessary.

(c). Refueling time is dependent on the type of fueling system used, and can be quite lengthy. There are two methods: "slow-fill" which takes from 5 to 8 hours and is typically called "overnight" or "time-fill" refueling, and "fast-fill" which takes about 5 to 10 minutes and requires high-volume compression and a special filling apparatus.

(d). Natural gas compression and refueling equipment is expensive and must be maintained. Fast-fill capability requires an additional "cascade" of high-volume storage cylinders, which adds considerable expense to the fueling station.

(e). There are composition variations in natural gas and percentage of methane content from one area to another. Additional processing is required to get uniform natural gas available in all areas.

- (f). Natural gas has poor lubricating properties.

F. Liquid natural gas (LNG)

Liquid natural gas utilizes the same natural gas source (primarily methane) as CNG, but requires purification of the gas and cooling and storage below -260 degrees Fahrenheit to liquefy the natural gas. Converting natural gas to liquid form allows storage of a much greater amount on the vehicle than can be achieved in the gaseous state.

1. Advantages:

- (a). Liquid natural gas has all of the combustion advantages of compressed natural gas, is readily available, clean burning, and generally produces lower emissions than alternatives other than CNG.

- (b). An engine will operate just as easily on LNG as it does on CNG. Though one is stored by compression and the other by cryogenics, when either gets to the point of combustion, it is natural gas.

- (c). The range of an LNG is greater than that of CNG due to the fuel density.

- (d). The LNG fuel system pressure is less than 100 psig as compared to 3000 psig in a CNG system.

- (e). LNG provides almost pure methane with known performance characteristics.

2. Disadvantages:

- (a). Maintaining the super-cool temperature requires large, heavy, highly insulated tanks which still forces compromise between vehicle range and cargo carried.

- (b). Equipment to super-cool and liquefy gas is expensive to purchase, operate, and maintain.

- (c). Liquid natural gas can be kept in the insulated storage tank for 7 to 10 days. After that, it must be bled off to maintain the cold temperature required to hold the gas in liquid form.

- (d). The bleeding-off process releases hydrocarbons which, in turn, requires treatment to avoid direct release into the atmosphere.

- (e). Natural gas has poor lubricating properties.

G. Propane (also known as LIQUEFIED PETROLEUM GAS or LPG)

Propane, or LPG, is sometimes available directly from wells, but is normally produced as a by-product of the gasoline refining process. It has been used for a number of years in light-duty commercial vehicles in urban areas around the world.

1. Advantages:

- (a). Propane burns relatively clean. It emits less NO_x and contains less particulate matter than diesel, and it emits less carbon monoxide and fewer hydrocarbons than gasoline.

- (b). The cleaner burning minimizes carbon buildup in the engine and hence results in less maintenance.

- (c). Propane starts better in cold weather than either diesel or gasoline.

(d). The infrastructure for distribution and storage of propane is relatively widespread.

2. Disadvantages:

(a). As with CNG, propane requires large and heavy fuel tanks to achieve reasonable driving range, due to reduced engine efficiency per gallon.

(b). Propane requires the use of relatively low compression ratios, hence has lower economy.

(c). Propane vapors, like gasoline, are heavier than air and volatile. These explosive mixtures settle in service pits or other spots; therefore, indoor storage can be a safety concern.

(d). As a by-product, propane is dependent on the gasoline process which limits supply. Further, it does little toward the reduction of dependency on foreign oil.

(e). Propane has poor lubricating properties.

H. Electric Power

The use of electricity as a power source for school buses is an emerging technology that is under considerable research due to the potential for reduced overall emissions. Research is centering on ways to increase the capacity and reduce the weight of batteries, as well as improving the motors used to power the vehicles and the associated electronics. Recharging technology is also developing rapidly. Most of these efforts have the goals of improving the range and performance of electric vehicles, reducing their cost, and addressing operational concerns, such as recharging.

1. Advantages:

(a). Electric power vehicles produce no tail-pipe emissions.

(b). The electricity distribution system is currently available; power lines are already in place.

(c). Electricity can be, and often is, produced from renewable, domestic energy sources.

(d). Electric power vehicles are extremely quiet, due to the lack of internal combustion engines.

(e). Electric school buses can be produced as hybrid vehicles, which would have a small internal combustion engine to recharge batteries, or to supply heating systems or various other chassis accessories.

(f). The cost per mile to operate electric power vehicles is low; power source maintenance is extremely small compared to internal combustion engines.

2. Disadvantages:

(a). Electric power vehicles have low range, due to battery weight and limited electrical storage capacity of current batteries.

(b). Electric power vehicles may not eliminate overall emissions and/or foreign oil dependency if electricity to charge vehicle batteries is produced from coal or oil.

(c). The current cost of electric power systems for vehicles, including batteries, is extremely high.

(d). Battery disposal is an environmental concern.

(e). The significant weight of current batteries limits passenger carrying capacity.

REQUIREMENTS FOR NEW SCHOOL BUSES

A. Procurement policies and vehicle specifications need to be established by local school districts and private schools.

1. Prepare procurement specifications. Mail one copy to State Office of Education, Pupil Transportation Specialist. Specification for bid shall include all applicable FMVSS and Utah standards.

2. Request for bids and specifications are sent to qualified suppliers of school buses.

3. Bids are received, evaluated, and selection made.

4. District issues purchase order.

5. Successful bidder provides school bus or buses.

B. Before any new school bus is placed into service in a school district, it shall first be inspected and tested to verify compliance with the *Standards for Utah School Buses and Operations*. Inspection shall be conducted by the Safety Inspection Office of the Utah Highway Patrol. On or before delivery of a new bus, the school district vendor or private school shall notify the Safety Inspection Office and request a new vehicle inspection.

C. Acceptance testing is conducted by a local agency or with assistance from the Utah Department of Transportation and the Pupil Transportation Specialist, Utah State Office of Education, to insure that the school bus complies with all standards and specifications. The acceptance test shall include but not be limited to:

1. An inventory of required safety features and equipment specified as compared with the line ticket issued by the manufacturer.

2. Functional tests of all lamps and signals, emergency braking system, horn, and other operating systems.

REQUIREMENTS FOR USED SCHOOL BUSES

A. This part of the *Standards for Utah School Buses and Operations* sets forth the requirements for used school buses to be used in Utah whether purchased or leased by the school district or private school. The modifications necessary to make a used bus comply with this section of the *Standards* can be made either by the seller or the buyer. Before any used school bus is placed into service in a school district, it shall first be inspected and tested to verify compliance with the *Standards for Utah School Buses and Operations*. The ultimate responsibility for assuring that a used bus complies with all federal and state standards before the bus is placed in service is the responsibility of the using district or school.

B. Used school buses shall (1) comply with the version of the *Standards for Utah School Buses and Operations* in effect at the time of manufacture, and (2) comply with the applicable sections of current state standards. This requirement shall be satisfied irrespective of whether the bus had previously been used in the State of Utah.

C. If required, glass in used school buses shall be replaced to bring the bus into compliance with current state standards.

EXEMPTION FROM OR MODIFICATION OF REQUIREMENTS

A. It is anticipated that to achieve the stated objectives of these standards, i.e., provide maximum safety consistent with the economic use of pupil transportation funds and available school bus technology, quality, reliability, conformity, and serviceability, it may be necessary to allow exemption from the requirements and periodically modify the requirements. This part sets forth the procedures for obtaining exemptions and modifying the provisions of the *Standards for Utah School Buses and Operations*.

1. An exemption from the requirements of the *Standards* may be initiated by a manufacturer or supplier of pupil transportation equipment or a local school district. The request shall be written, should include sufficient supporting data to justify the request for an exemption, and should be submitted to the Pupil Transportation Specialist at the Utah State Office of Education.

2. All requests for exemptions from the requirements of the *Standards* shall be reviewed by a committee consisting of at least one representative of the Utah State Department of Transportation, one representative of the Utah State Department of Public Safety, the USOE Pupil Transportation Specialist, and such consultants as deemed appropriate. If necessary, this committee will submit the request to the full School Bus Standards Committee and may require that the request be presented in person.

3. All requests for exemption from the requirements of the *Standards*, together with the recommendations of the review committee, shall be submitted to the State Office of Education for its action and transmittal to the Utah Department of Transportation. Final authority for determining the disposition of a request is vested with the Utah Department of Transportation.

B. Modification Procedures.

1. An intent to modify the *Standards* shall be distributed to certified suppliers and other interested parties at least thirty (30) days prior to consideration of the modification by the Utah State Office of Education and the Utah Department of Transportation.

2. After approval of the proposed modification by the Utah State Office of Education and the Utah Department of Transportation, the modification shall become effective 90 days following distribution.

SCHOOL BUS BODY AND CHASSIS: APPENDIX 1

COLORADO RACKING LOAD TEST

A Racking Load Test shall be performed to assure adequate shear stiffness and strength of the bus body. The racking load shall be applied along a line connecting the most distant points on a transverse cross section of the bus interior.

The maximum jack load for the two-frame assembly is determined by the following formula:

$j = 2p$, where j = maximum jack load for two-frame test assembly

$p = DVW / N$ and p = load/frame

$DVW = DF \times GVW$ DVW = dynamic vehicle weight

DF = dynamic factor, not less than 1.5

GVW = gross vehicle weight

N = total number of bus body frames

Thus for a $DF=1.5$, a $GVW=22,000$ lbs and $N=11$, the dynamic vehicle weight is $DVW=33,000$ lbs, the load/frame is $p=3000$ lbs and the maximum jack load is $j=6000$ lbs.

When a complete bus body is rack loaded, the total load DVW must be distributed uniformly along the bus body. This may be accomplished by mounting a series of hydraulic jacks along the length of the bus interior. Seats may be removed to facilitate jack mounting although removal is not recommended when upper seat frames are normally attached to the body structure. The rack load will be considered to be uniformly distributed when the variation in the hydraulic jack readings is less than 10%. At maximum load the sum of all jack readings shall equal DVW .

Racking Load Test, 1972, developed by the Department of Mechanical Engineering, University of Colorado. Directed by Dr. William E. Jahsman, Professor of Mechanical Engineering, University of Colorado, Boulder, Colorado 80302.

SCHOOL BUS BODY AND CHASSIS: APPENDIX 2
PLACEMENT OF RETRO-REFLECTIVE MARKINGS

SCHOOL BUS OPERATIONS

ADMINISTRATION

A. The State Office of Education shall provide the following:

1. Leadership in the development of a comprehensive pupil transportation program for statewide application.

2. A state director/specialist of pupil transportation with the staff and other resources necessary for optimal job performance.

3. A clear, concise pupil transportation policy.

4. A cost accounting system for all expenditures in the area of pupil transportation.

5. A statewide data management system to accommodate pupil transportation data, e.g., costs, information from the Uniform School Bus Accident Report Form, etc.

6. Promotion of a pupil transportation safety program utilizing community, legislation, media, law enforcement, and state agencies concerned with pupil transportation.

7. A comprehensive school bus operator training program.

8. A manual for school bus maintenance personnel.

9. Workshops, seminars, and conferences for all pupil transportation personnel.

10. Safety and ridership curricula for pupil passengers.

11. Visits to local districts to evaluate transportation systems and provide direction as necessary.

12. Coordination with the Department of Transportation and Department of Public Safety.

B. The local school district board of education/district administration provides the following:

1. Implementation of the state pupil transportation policy.

2. Involvement in:

(a). Pupil transportation operations, including participation in training programs for all transportation personnel.

(b). The review of school bus routes and the continuous evaluation of pupil transportation.

(c). The investigation and reporting of accidents and other transportation problems.

(d). Providing resource material and establishing, as an integral part of the school curriculum, instruction in passenger safety which complies with Highway Safety Program Standard 17 (Standards for School Buses - Appendix 1).

(e). Providing continuous supervision of loading and unloading areas at or near the schools, and conducting periodic emergency evacuation drills.

(f). Providing adequate supervision for pupils whose bus schedules necessitate their early arrival or late departure from school.

(g). Promoting public understanding of, and support for, the school transportation program in general.

(h). The development of district pupil transportation policies and regulations, including those for disabled students.

C. State Pupil Transportation Director. Specific duties of the state pupil transportation director/specialist include, but are not limited to:

1. Implementing state pupil transportation policies throughout the state. Developing and establishing guidelines/policies for adoption.

2. Managing the state's pupil transportation program to include planning, budgeting, and forecasting requirements for the operation.

3. Collecting and analyzing statistical and financial data.

4. Allocating state pupil transportation funds.

5. Developing specifications and bid forms, and conducting state pool purchase of school buses.

6. Preparing of manuals, handbooks, and information for distribution to local district transportation supervisors and private contractors.

7. Coordinating/planning with other state agencies.

8. Developing and organizing written training programs for pupil transportation personnel.

9. Providing consulting services and assistance to local districts as necessary.

10. Evaluating local districts' operations and providing recommendations.

11. Conducting transportation audits.

12. Planning and directing training for pupil transportation personnel.

13. Requiring and maintaining appropriate reports and records.

14. Acting as liaison with other state agencies, local school districts, and district patrons.

D. Local Pupil Transportation Director. District pupil transportation director/supervisor's specific duties include, but are not limited to:

1. Providing assistance in planning, budgeting, and forecasting for the pupil transportation system.

2. Assisting school officials in school site selection and plant planning.

3. Providing bus chassis and body procurement.

4. Developing and implementing a plan for equipment maintenance.

5. The recruitment, selection, instruction, and supervision of personnel.
6. Routing and scheduling buses.
7. Developing and implementing pupil transportation safety instructional programs.
8. Cooperating with superintendents, teachers, transportation personnel, students, parents, and various public and private agencies to improve the quality and safety of the transportation system.
9. Investigating and reporting accidents.
10. Maintaining records and preparing reports.
11. Developing and supervising the implementation of an ongoing evaluation plan for the district pupil transportation system.

PERSONNEL QUALIFICATIONS

A. The pupil transportation director/supervisor shall have a basic understanding of the educational process. Qualifications shall include:

1. A satisfactory driving record as revealed through checks with the driver license division.
2. A satisfactory work history as verified through professional references.
3. An undergraduate degree or equivalent experience in education, business administration, management, fleet management, or a related field.
4. The ability to manage personnel and resources necessary to achieve a desired objective.

B. The school bus operator shall possess the following qualifications:

1. Minimum age, 21.
2. Physical qualifications:
 - (a). Enough physical strength to handle the bus with ease.
 - (b). Possession and use of both hands, both arms, and both feet.
 - (c). Freedom from any communicable disease.
 - (d). Physical capability to appropriately lift and manage pupils, including disabled pupils, when necessary.
 - (e). Ability to cope with stressful situations related to pupils, including disabled pupils.
 - (f). Freedom from any mental, nervous, organic, or functional disease likely to interfere with safe driving, such as paralysis, insulin-dependent diabetes, abnormally high blood pressure, etc.
 - (g). Use of both eyes with vision equivalent to 20/40 (Snellen test) or better with or without glasses and near-normal depth perception.
 - (h). Ability to issue clear, understandable oral directions or commands.

(i). No current clinical record of use of amphetamines, amphetamine-like derivatives, narcotics, psychotropic, or any habit-forming drug.

(j). Adequate hearing.

(k). A total field of vision of at least 150 degrees.

(l). No color blindness deficiency that would interfere with safe driving.

(m). Evidence of having successfully completed a physical examination in accordance with the U.S. Department of Transportation, Bureau of Motor Carrier Safety Regulations, for drivers. This physical examination is renewable every two years.

(n). A commercial driver license (CDL) with a school bus endorsement.

(o). Completion of an application form which includes a personal and occupational history.

3. The applicant's past driving record shall be researched. The applicant must not have more than 100 points recorded to be a qualified candidate.

4. A check will be conducted to determine if an applicant has a record of criminal convictions. No person shall be employed or retained as a school bus operator in Utah who has been *convicted* of any of the following offenses:

(a). A crime involving violence or threat of violence (assault/battery, etc.).

(b). Driving any vehicle while under the influence of intoxicating liquor within the last 10 years.

(c). Driving while under the influence of habit-forming or illegal drugs during their lifetime.

(c). Leaving the scene of an injury accident or manslaughter with a motor vehicle.

(d). A crime involving the use of a motor vehicle in conjunction with a fatality and/or felony.

(e). A sex offense crime involving force or minors.

NOTE: The applicant should be told that the above checks will be made before being asked to complete the application for employment.

5. Educational attainment shall be determined. An applicant should demonstrate the ability to follow detailed, written instructions, and be able to accurately record and report data.

6. Prior to transporting pupils, adequate classroom and in-bus training that enables the applicant to handle the bus in a safe and efficient manner shall be required. Such training requirements are outlined in the "Training" section of this manual beginning on page 73.

7. An annual inservice training course is required (See page 73).

C. Maintenance and Service Personnel

1. Adequate staff should be employed to perform maintenance functions on a timely basis consistent with safe transportation. At least one full-time mechanic for every twenty buses is recommended.

2. The district should arrange, at regular intervals, for pre-service and inservice training for mechanics (See Appendix 1).

PUPIL MANAGEMENT

Pupil management involves the combined effort of four groups of individuals. An effective program must have the support of the school district, school bus drivers, pupils, and parents. Each school district should institute a comprehensive pupil-management program that is designed to share the responsibility for pupil safety and well-being, as well as protecting the interests of all others involved in the program.

A. School District Responsibilities.

1. To establish the policies and procedures by which the program functions. These should include the examples in Appendix 2.

2. To establish pupil regulations governing the behavior and safety of pupils while on the bus and at the bus stop (See Appendix 3).

3. To institute and administer an instructional program that teaches pupils proper conduct and safety procedures (See Appendix 4).

4. To conduct a training program for school bus drivers to ensure that all policies, procedures, and regulations are understood.

5. To ensure that parents receive written copies of bus rules and regulations, and to clearly establish their roles and obligations with respect to pupil promptness, attitude, and behavior.

6. To provide training in pupil-management skills that extend beyond the mere enforcement of rules and regulations.

B. Driver Responsibilities.

1. To be familiar with all rules, policies, and procedures affecting pupil transportation.

2. To establish rapport with each building administrator and to work to ensure proper conduct and communications.

3. To establish proper rapport with pupils.

4. To instruct pupils in proper behavior, general procedures, and drills (See Appendix 5).

5. To maintain order as a safety practice and stress the following points:

(a). Minimize interior noise.

(b). Control passenger movement.

(c). Require an orderly entrance and exit.

(d). Eliminate movement or potential movement of objects.

(e). Require silence at railroad crossings.

(f). Prohibit transportation of unauthorized materials.

(g). Handle minor infractions through seat assignments or discussions with pupil passengers.

(h). In instances of serious or recurring misconduct, use appropriate written forms to describe violations to persons dealing with discipline problems (See Appendix 6).

C. Pupil Responsibilities.

Proper pupil behavior is important. Distraction of the driver can contribute to accidents. Pupils and parents should be made aware of, and abide by, reasonable regulations to enhance safety. The consequences of unacceptable behavior should be clearly understood. The following procedures will protect the pupils' rights and maintain order on the bus.

1. To be aware that they are responsible for their actions and behaviors.
2. To know what the rules and procedures are and abide by them.
3. To display proper respect for the rights and comfort of others.
4. To realize that school bus transportation can be denied if they do not conduct themselves properly.
5. To be aware that any driver distraction is potentially hazardous.

D. Parent/Guardian Responsibilities Regarding Rules and Regulations.

1. To become familiar with the rules and regulations.
2. To encourage their children to abide by them.
3. To assist children in understanding them.
4. To recognize their responsibility for the actions of their children.
5. To effect desirable changes in their children's behavior.
6. To support safe riding practices.
7. To support procedures for emergency evacuation (See Appendix 5).
8. To support procedures for safely crossing the roadway before boarding and after leaving the bus (See Appendix 7).
9. To support the districts' emergency procedures plan.
10. To support respect for the rights and privileges of others.

STUDENT ELIGIBILITY

A. Eligible Students

1. Elementary (Grades K-6): Pupils who live one and one-half miles or more from the school that the local board of education has assigned them to attend.
2. Secondary (Grades 7-12): Pupils who live two miles or more from the school that the local board of education has assigned them to attend.
3. Pupils with disabilities whose IEP requires transportation are eligible regardless of distance from the school.
4. Students who attend school for at least one-half day at an alternate location as assigned by the local board of education may be expected to walk reasonable distances between schools.

B. Ineligible Students

1. If a school district allows ineligible students on a bus and their presence does not create an appreciable increase in the cost of the bus route as determined by the State Office of Education (in computing to and from school state allocations), the district shall not be penalized.
2. Ineligible students may ride existing bus routes, and to and from an existing bus stop, on a "space available" basis provided that neither time, mileage, or other appreciable cost is added as a result of this service.
3. No eligible transported student is to be displaced or required to stand in order to make room for an ineligible student.
4. If a school district implements double sessions as an alternative to new building construction, with the approval of the State Board of Education, these affected elementary school students residing less than one and one-half miles from school may be transported one way to or from school because of safety factors relating to darkness or other hazardous conditions as determined by the local board.

C. Off-Site Training Locations

Students may be transported from home or school to ATCs, colleges, universities, hospitals, businesses or other training sites subject to the following conditions:

- (a). Routes may be approved for a minimum of 10 students or a minimum of five students who are with disabilities. Routes serving fewer students may be operated at district expense.
- (b). Bus routes serving off-site training locations are restricted to two round-trips per day. Routes must be optimized in regard to stops per run.
- (c). In order to qualify for state funding, route data (including maps) must be included in the November 1 bus route data submission.

REQUIREMENTS FOR BUS ROUTE APPROVAL

Transportation will be over routes proposed by the local boards of education and approved by the State Office of Education. These routes shall traverse the most direct public route. Utah Department of Transportation approves all railroad crossings. This section presents criteria used in approving bus routes.

A. Method of Measurement

IN ORDER TO DETERMINE PUPIL ELIGIBILITY, THE DISTANCE FROM HOME TO SCHOOL OR SCHOOL TO HOME IS MEASURED AS FOLLOWS:

*From the center of the public route (road, thoroughfare, walkway, or highway) open to public use, start or stop the measurement opposite the front door of where the pupil is living, then over the nearest public route (thoroughfare, road, walkway, or highway) open regularly for use. Start or stop the measurement opposite the nearest public access to the school grounds where the student is attending. **The shorter of the two distances (home to school or school to home) will be used.***

B. Minimum Number of Eligible Riders

1. The minimum number of regular students that is necessary before a route can be established is 10. A route may be established for fewer students with permission of the State Superintendent.

2. The minimum number of students with disabilities that is necessary before a route can be established is five. A wheelchair student is the equivalent of four students. A route may be established for fewer students with permission of the State Superintendent.

C. Bus Stops

1. To promote bus route efficiency, the minimum distance between stops should be .3 of a mile in safe areas assigned by the local district.

2. For efficiency, bus routes should be avoided that have bus stops on dead-end roads. These stops increase costs due to extra mileage and time consumed.

3. Students will be expected to walk to bus stops up to one and one-half miles from their home depending on the age and ability of the students. Disabled students are expected to walk to bus stops commensurate with their ability.

4. Whenever a bus route is extended to pick up additional children, the extra costs and time should be analyzed, and prior approval received from the State Office of Education. In some situations student reimbursement may be more economical.

D. Approved deadhead mileage

1. Deadhead mileage shall include (1) the mileage from the garage or bus storage area to the first pickup point, (2) mileage that is accumulated between schools for other bus runs when no pupils are being transported on the bus and (3) the mileage accumulated during the last run in the morning and evening from the last school or bus stop to the garage or storage area.

2. Districts are reimbursed under "Schedule B" (see page 105, finance formula) for using cars instead of school buses for deadhead mileage.

3. All bus routes that involve a large number of deadhead miles needs to be analyzed for possible reduction. There are several ways to reduce excessive deadhead mileage. One way is by using an automobile (private or district-owned) instead of the school bus since the cost of operating a bus is several times that of operating an automobile.

E. The bus driver can be employed at other district jobs during "dead" time.

F. The costs incurred in pupil transportation from using district vehicles is an approved Schedule B expense. Payment for the use of private vehicles shall be made to the 516 account not to exceed actual district costs. Caution: Use of personal cars may be subject to IRS regulations.

G. A bus route may follow only public roads that are constructed and maintained at such standards that the condition of the road will not subject the passengers or the bus to undue hazards and will not subject the school district or any of its employees to liability for injury or property damage.

H. Early home routes of first, second, or other grades do not qualify for state aid unless approved by the State Office of Education. A request for state aid for these routes showing the following information shall be sent to the State Office of Education for approval prior to starting the route:

1. Route Number
2. Bus Route Minutes, Deadhead Minutes, Bus Route Miles, and Deadhead Miles (One Way)
3. Grade(s)
4. Number of Students
5. Normal Time School Dismisses
6. Normal Time of Bus Departure
7. Reasons for This Additional Route

I. Transporting eligible students home after school activities held at the students' school of regular attendance and within a reasonable time period after the close of the regular school day is approved mileage. (These runs are coded as "L" on the bus route map label.)

J. New bus routes and changes to existing routes shall be reported during the October count.

K. Routes generally will not be approved if payment of equitable transportation allowances or subsistence allowances will accomplish the needed transportation at lower cost.

L. The route shall be reasonably cost-effective relative to other feasible alternatives.

M. A route may be proposed for special consideration as an alternative to building construction. Where appropriate, and upon special permission of the State Office of Education, such routes will be approved where it can be shown that the route will allow more efficient district use of school facilities. Examples: elementary double session, year-round, across district boundaries, consolidation of schools, etc.

TRAINING

A training program shall be offered by the State Office of Education to permit pupil transportation personnel the opportunity to attain a high degree of competence and knowledge of their duties. The goal is to train all personnel so that the performance of their duties results in a safer trip for the students who are transported.

Since January 1, 1997, the position of Utah Certified Pupil Transportation Instructor (Certified Instructor) has existed. A Certified Instructor must successfully complete the Utah Pupil Transportation Instructor Certification Program as set forth in Utah State Board of Education standards.

SCHOOL BUS OPERATOR TRAINING

A. Commencing July 1, 1999 (or when program is implemented), school districts in the state of Utah shall have, or contract with, one of the following:

1. Utah Certified Pupil Transportation Instructor (state level)
2. Pupil Transportation District Instructor (district level)
3. Delegated Behind-the-Wheel Trainer (district level)

NOTE: Each district shall have at least one Delegated Behind-the-Wheel Trainer.

Suggested ratio would be a combination of instructors and trainers of 1 for every 25 drivers.

B. Commencing July 1, 1999, (or when program is implemented), District Level Instructors shall be trained by a State Level Instructor. A Delegated Behind-the-Wheel Instructor shall be trained by a State or District Level Instructor.

C. Commencing July 1, 1999 (or when program is implemented), operator training (pre-service, behind-the-wheel, basic course, and state-required portions of the operator's inservice) shall be taught by a Certified Instructor annually. (state or district level)

D. Commencing July 1, 1999 (or when program is implemented) school bus operators in the State of Utah, in order to operate a school bus in the state, shall satisfactorily complete required instruction and thorough testing by a state or district level instructor (state inservice) and must be approved for service and license renewal by a Certified Instructor annually. (state or district level)

E. Commencing July 1, 1999 (or when program is implemented), school bus operators in the State of Utah shall be taught behind-the-wheel techniques on a school bus by one of three individuals:

1. A State Certified Instructor
2. A District Level Instructor
3. A Delegated Behind-the-Wheel District Trainer

F. Since January 1, 1998, state level instructors have had the authority to instruct state-wide. Since January 1, 1998, district level instructors have had authority to instruct in their home district, or if accompanied by a state level instructor, to teach in other districts. Since January 1, 1998, behind-the-wheel trainers have had the authority to train in their home district.

G. Since January 1, 1997, state level Instructors have attended the state transportation conference for the purpose of developing the state inservice program for the coming year.

H. Beginning Operator Course

Minimum Pre-service. This course is required and will include the following classes before driving a school bus.

(a.) District Procedures	1 hour
(b.) Classroom Instruction (Units 7, 8, & 9)	3 hours
(c.) Behind-the-Wheel Driving & Skills Appraisal	12 hours
(d.) Operation Lifesaver (Railroad Crossing Safety)	1 hour
(e.) Basics of First Aid	1 hours
(f.) Drug and Alcohol Awareness	1 hour
(g.) Blood-Borne Pathogen Information	<u>1 hour</u>
Total:	20 hours

I. Basic Requirements-(To be completed during the first 90 chronological days of employment.)

(a.) Classroom units (1-6 & 10,11,12)	11 hours
(b.) Sexual Harassment Information	1 hour
(c.) Defensive Driving/PTD	6 hours
(d.) First Aid/C.P.R. (approved by U.S.O.E)	6 hours
(e.) Canyon Driving Training	<u>2 hours</u>
Total:	26 hours

J. Re-certification with C.D.L. license renewal. Minimum every 5 years

To be completed by experienced drivers within a five-year period before license renewal.

(a.) First Aid/ C.P.R. Training (Utah Safety Council Course)	6 hours
(b.) Professional Truck and Bus Defensive Driving Course	6 hours
(c.) Classroom Units	8 hours
(d.) Road Performance and Skills Appraisal	<u>10 hours</u>
Total completed in five years	30 hours

Drivers completing re-certification may meet the above classroom requirements by attending the original certification courses taught at a network of certified state-wide classroom sites. This creates greater flexibility and less duplication of effort.

K. Eight-hour inservice training

All district employees who hold a C.D.L. with Passenger and School Bus endorsements who may transport students shall re-certify according to these standards.

Inservice training each year shall include drug and alcohol awareness training and blood-borne pathogens training as mandated by federal standards. Other topics such as updates on federal, state, and local laws and regulations and current issues of concern for school busing shall be discussed under the guidance of the Pupil Transportation Office of the Utah State Office of Education.

SCHOOL BUS MECHANIC TRAINING

A. Mechanics' Annual Inservice Training Course

A school bus that operates properly is more responsive to the driver's command and enables the driver to devote attention to the driving task. Continuous safe operating characteristics of school buses are vital to a district's pupil transportation system. An untrained mechanic is a poor investment of state funds.

Therefore, it is recommended that full-time mechanics attend the Utah State Office of Education sponsored annual inservice training program.

B. Specialized Training (as needed). The district should make available to its mechanics the necessary training for the particular buses being serviced.

INSTRUCTOR TRAINING

As of June 1, 1997, Utah State Pupil Transportation Instructors (formerly referred to as Driver Trainers) shall be certified under the Utah Pupil Transportation Instructor Certification Program, as approved by the Utah State Board of Education.

PUPIL TRANSPORTATION SUPERVISOR TRAINING

A. Annual Supervisors' Meeting. This is a training workshop required of persons holding the primary pupil transportation supervisory position in the school district or the manager of any contract carrier serving a school district.

B. Program Evaluations with State Pupil Transportation Specialist. Each school district is required to have a plan for evaluating its pupil transportation operation and reporting the operation's effectiveness to the Utah State Office of Education.

C. Mandatory Annual Training. Each transportation supervisor shall be trained 120 minutes yearly on the effects of drugs and alcohol, the state drug testing program, and state policies covering alcohol abuse and the use of illegal substances.

D. National Pupil Transportation Conferences. Districts are encouraged to allow their transportation supervisors to attend the annual national conference and/or the annual western region pupil transportation conference.

DRIVER GUIDELINES

USE OF SPECIAL LIGHTS AND SIGNALING EQUIPMENT

Alternately flashing signal lamps shall be used when the bus is stopping or stopped for the purpose of taking on or discharging passengers as follows:

- A. Alternately flashing amber lamps are to be used to warn motorists that the bus is stopping to take on or to discharge passengers.
- B. Alternately flashing red lights are to be used to inform motorists that the bus is stopped on the roadway to take on or discharge passengers.
- C. The stop arm must be operated in conjunction with the flashing red signal lamps.
- D. Outside public address systems may be used for instructing children in crossing highways and for informing them of potentially life-threatening situations.

STANDEES

- A. Students must be seated at all times while being transported to and from school.
- B. Standees shall not be permitted under any circumstances.

ROUTING AND SCHEDULING

A. It is necessary to procure a map of the area served by a particular school or school system in order to establish bus routes that will adequately meet the needs of pupils in that area. Information on the road conditions, railroad crossings, and other factors that might affect the operation should be recorded.

B. Procedures for school bus drivers at railroad crossings appear in Appendix 10. Satisfactory school bus stops must be identified along streets and highways where buses can travel with the least amount of risk. The number of pupils to be transported and the distance to be traveled are primary factors in allocating equipment for a particular area. Pupils should be assigned to specific stops according to walking distances, grade level, and the school attended. Special attention must be given to the disabled.

C. Routing Techniques

1. A circular route circumscribes an area by using different roads on outgoing and incoming trips. It has the advantage of equalizing time in transit for transported pupils since the first child on in the morning is the first child off in the evening.

2. A shoestring route extends from the school to some terminal point in the district. If the bus is stored at the school, the same road or roads are used on the outgoing and incoming trips; consequently, children are always traveling more or less directly toward the school.

3. A feeder route extends from a point farther out in the district to a transfer point on the main route. It may be advisable for one or more of the following reasons:

- (a). To limit the use of large buses to improved roads.
- (b). To reduce travel time on the main route.

(c). To provide some form of transportation on roads that at times may be impassable by larger buses.

4. A shuttle route extends between two or more school buildings. Such routes are often required for the transfer of pupils in districts operating two or more schools.

5. Retracing routes eliminates the need for pupils to cross the roadway. Retracing should be used only when pupils would be subjected to greater than ordinary risk crossing the road to their residence after exiting the bus.

6. Contingency routes should be established and utilized in all school systems when weather or road conditions dictate that it is not safe to travel on other than hard-surfaced roads. Announcements can be made by public radio or other means when such routings are to be used.

D. Route Plans.

1. The single trip plan involves a morning and an afternoon trip by one bus on each route. This form of service is well adapted to sparsely settled areas. It also meets the needs of schools where the instructional program requires both elementary and secondary pupils to arrive at the same time.

2. The double trip plan calls for each bus to cover two different routes in the morning and afternoon. This plan is suited to districts of relatively dense population where distances are not great. If children of all grades are carried on each trip, program adjustments in the instructional schedule are necessary to avoid idle waiting time at the school. If these adjustments can be made without sacrificing the interests of the children, the double trip may be economical by requiring fewer buses.

3. The multiple or dual trip plan calls for more than two trips each morning and afternoon over the same route by each bus. This arrangement is feasible only where route distances are relatively short or the starting times for several schools in the areas vary enough to warrant such a plan. High school pupils may be brought to school on the first morning trip with elementary children arriving on the second trip. In the afternoon the elementary children should be taken home first if the elementary day is shorter than the high school day. Districts whose program requires a day of equal length for both groups may transport the high school pupils on the first trip in the morning and return them on the first trip in the afternoon.

E. Survey and Stops

1. Surveys should be conducted by the pupil transportation supervisor for the purpose of identifying factors that suggest a route change. After the survey is completed, a time study should be made by conducting a dry run over the route in the same bus that would be used in the actual operation. The driver(s) who will operate over the route(s) should regard the trip as a dry run. All scheduled stops and time between stops should be indicated. These data, if accurate, will permit the development of a schedule that will need little revision once it is in effect. After the route has been established, a schedule showing individual stops should be available in the bus for substitute drivers.

2. Requests for new or additional service should be investigated thoroughly and approved by the Utah State Office of Education before a change is made. Transportation supervisors should remember that stopped school buses pose a hazard on thoroughfares with relatively high speeds or high traffic volume. It is usually unwise to load or unload passengers on such roadways.

3. Stops should be established only after thorough investigation has revealed the location to be the most desirable in the area. It is considered poor practice to negotiate a U-turn on main arteries of traffic even though provisions for such turns may have been made. The projection of the rear end of the bus into inside traffic lanes from medians that are too narrow to accommodate bus length often creates traffic interference that places the lives of transported pupils in jeopardy. Further, it is desirable to eliminate,

insofar as possible, the necessity to turn the bus by backing. Stops should always be located at a distance from the crest of a hill or curve to allow motorists traveling at the posted speed to stop within the sight distance. Additional precautions should include, but may not be limited to the following:

- (a). Determine the location and destination of all pupils to be transported.
 - (b). Provide the driver and the transportation office with a list of pupils on the bus(es) and approximate times for pick up and return of pupils.
 - (c). Provide a map indicating routing of the bus and pupil locations.
 - (d). Identify pupils with dormant medical problems that may require specific actions from the driver in the event the problem becomes active.
- 4. Provide parents or guardians of all pupils with the driver's name, bus number, pick up and return times, school closing information, school calendar, etc.
 - 5. Determine the advisability of utilizing computer-assisted route scheduling.
 - 6. Plan routes that will permit optimum pupil safety, program efficiency, and operational economy.

INSPECTION OF EQUIPMENT

A thorough and systematic inspection procedure is the essence of a planned preventive maintenance program. Daily route inspections will alert the driver to the need for minor repairs and adjustments. Failure to conduct such inspections for any sustained period of time could result in more extensive repairs at a later date. Inspection, therefore, is an indispensable factor in a safe school transportation system. The school bus driver is the key to an effective daily inspection program. It is the driver's responsibility to make a planned and systematic inspection of the bus before each trip. A recommended procedure requires the conducting of both stationary and operating inspections. The following outline is not suggested as a model for use, but is included as a guide for transportation personnel to use in developing a systematic inspection procedure.

A. Stationary Inspection.

- 1. Pre-starting inspection.
 - (a). Observe the bus for evidence of oil, fuel, or water leaks, vandalism, etc.
 - (b). Raise the hood and make sure the safety latch or hinge is in the "hold" position. Check oil, water, belts, hoses, and wiring for frayed, cracked, or deteriorated conditions.
- 2. Walk-around Inspection. Place the transmission in neutral and set the parking brake. Fully depress the clutch pedal in manual transmission-equipped vehicles. Start the engine and inspect the bus from top to bottom and end to end. Inspect:
 - (a). Tires (under-inflated, flat, excessively worn, or damaged).
 - (b). Wheels (loose or missing nuts, excessive corrosion, cracks, or other damage).
 - (c). Fluid leaks (evidence of wetness on inner wheels and tires).
 - (d). Windows (all should be clean).

- (e). Mirrors (clean, properly aimed, and tightly adjusted).
- (f). Warning systems (clean, properly working running lights, back-up lights, signals, and signs, reflectors, turn signals, stop lights, and warning flashers).
- (g). Exhaust system (sagging exhaust pipes, short and leaky tailpipes, and defective mufflers).
- (h). Emergency exits (tightly sealed to prevent possible entrance of dangerous carbon monoxide fumes. Check by opening and closing to keep hinges operational and to observe functioning of warning buzzer).
- (i). Alternate fuel systems (include fittings and attachments that must be inspected for leaks, wear, or undue stress at quarterly intervals; container valves, appurtenances, and connections must be inspected for damage from accidental contact with stones, ice, or other loose objects; fuel lines must be inspected for damaged or missing rubber grommets and bulkhead fillings; all bolts in mounting brackets must be checked for proper torque on a systematic basis; all inspections must be conducted in accordance with National Board of Fire Underwriters (NBFU) Pamphlet #58).

3. Inside Safety Check.

- (a). The passenger compartment, seats, frames, emergency exits, and windows must be carefully checked.
- (b). Inspect instruments and controls. With the engine operating, check the following:
 - (1). Vacuum or air pressure gauge or hydraulic indicator lights. These should indicate adequate capacity to operate brakes. Loss of air, or hydraulic pressure, or vacuum indicates a braking deficiency that must be corrected immediately.
 - (2). Oil pressure gauge. The engine should be turned off in the event of inadequate pressure and reported immediately.
 - (3). Warning lights.
 - (a). Oil pressure warning light. Prolonged display of the warning light is a signal of oil pressure problems and should be reported immediately.
 - (b). Service brake warning light. A light on during brake application indicates that the brake system is not operating properly.
 - (c). Alternator/Generator warning light. A continuous light "on" after the engine is running indicates a malfunction in the charging system.
 - (d). Ammeter or voltmeter. Any continuous discharge should be reported immediately.
 - (e). Water temperature gauge or warning light. The indicator should always read "cool" or "warm". If it reads "hot," the engine should be stopped immediately. The same action should be taken if the temperature warning light goes on.

4. Check each of the following for proper operation, adjustments, or condition:

- (a). Lights and signals. Turn signals, stop lights, special warning lights, emergency flashers, clearance (markers) lights, headlights, interior bus lights, and step-well lights.

- (b). Stop arm control.
- (c). Windshield fan, defrosters, and heaters.
- (d). Horns.
- (e). Service door and control.
- (f). Mirrors. Rear view, side view, convex, and elliptical.
- (g). Emergency reflectors.
- (h). Driver's seat and seat belt.
- (i). Fire extinguisher.
- (j). First aid kit.
- (k). Body fluid clean-up kit.
- (l). Wipers/washers.
- (m). Sanders, or drop chains when equipped.

B. Operating Inspection.

A planned road check enables the driver to evaluate the steering suspension, clutch, transmission, drive line, engine, and brakes. The following items should be included when road checking the vehicle prior to transporting pupils:

1. The parking brake. Check by slowly engaging the clutch while the parking brake is "on." In some air brake systems, the parking brake will remain applied if there is a partial or complete air pressure loss in the service brakes.
2. Transmission operation. An automatic transmission should not slip and a manual transmission should allow for easy and smooth gear changes throughout the entire shifting range.
3. The clutch. The clutch should engage easily and smoothly without jerking, slipping excessively, or chattering. A properly adjusted clutch should have some free play when the pedal is fully released.
4. Service brakes. Test at low speeds; bring the bus to a complete stop. It should stop in a straight line, without skidding or swerving to one side.
5. The engine. Never race a cold engine. Instead, increase speed slowly so that all parts may be properly lubricated.
6. Steering. Report any unusual riding or handling characteristics.

NOTE: Not all drivers have the ability to spot every problem. Drivers should, however, make a thorough stationary and operating inspection of their buses each day. Inspection should become an integral part of driving and drivers must always be alert to any warning signal that indicates something is wrong. This alertness will permit drivers to spot trouble and act accordingly before it causes serious damage or results in an accident.

MAINTENANCE OF EQUIPMENT

A. Policies.

1. Strong and reasonable school bus maintenance policies should be adopted that will provide efficient guidelines for the supervisor of transportation, maintenance personnel, and operators of the vehicles.

2. Such policies should include the maintenance responsibilities of each person involved and should provide for a planned maintenance program.

3. Planned maintenance may be defined as scheduled maintenance that involves making minor repairs and adjustments which, if neglected, may develop into major difficulties requiring extensive and expensive repairs in addition to costly downtime.

4. Manufacturers' service manuals and warranty protection guidelines contain valuable information for successful preventive maintenance programs. These instructions and procedures should be carefully followed for maximum effectiveness and safety in fleet operation. Vehicle and component manufacturers (transmission, electrical, etc.) offer training for fleet mechanics. Those interested in effective operations will take advantage of these training programs.

B. Objectives of a planned maintenance program.

1. Keeping the vehicles in safe and efficient operating condition.

2. Preventing failures on the road.

3. Conserving fuel.

4. Lowering maintenance costs by reducing the need for major repairs or overhaul.

5. Extending the useful life of the vehicle and its components.

6. Enhancing vehicle appearance.

C. Communications. School districts or private contractors should develop a system whereby written communication would allow interchange and feedback relative to maintenance work needed and completed. An efficient system should include:

1. Driver's report form to initiate needed maintenance.

2. Mechanic certification of completed work.

3. Method of permanently recording repair and maintenance history of each vehicle.

EMERGENCY PROCEDURES

Each district should have an emergency plan. Copies of the plan should be carried in each bus. This plan should be developed in cooperation with the personnel in those agencies that will render service during emergencies. The school transportation supervisor, school administrators, teachers, drivers, maintenance and service personnel, pupils, and others should be instructed in the procedures to be followed in the event of:

A. Accident. The plan should spell out the following:

1. How to prevent further accidents.
2. How to evacuate the bus and control pupils.
3. How to evaluate the need for medical assistance.
4. How to get help from the police, fire department, and garage.
5. How to collect and record data essential to the preparation of the required accident reports. An operational plan to provide two-way communication with parents or guardians is imperative.

B. Sudden disability of driver. Procedures for handling situations resulting in the fatal injury or disability of the bus driver should be established and communicated to appropriate persons.

C. On-road failure. The emergency plan should cover the procedure for:

1. Securing the bus.
2. Controlling the passengers.
3. Diagnosing the cause(s) of the road failure.
4. Notifying school officials and the appropriate law enforcement agency.
5. Recovering the disabled school bus.

D. Inclement weather conditions. The emergency plan should provide procedures for determining:

1. When schools are to be closed.
2. Who is to make this decision.
3. How this notice is to be relayed to parents, pupils, school officials and staff, drivers, contractors, maintenance and service personnel, and the news media.
4. How to react to such natural phenomena as floods, earthquakes, etc.

E. Other types of emergency situations. The emergency plan should cover such events as road or bridge washouts, landslides that might block school bus routes, and bus hijacking.

BUS OPERATIONS OTHER THAN TO AND FROM SCHOOL

To provide safe and efficient activity transportation, lines of responsibility and authority need to be defined and personnel involved must have an understanding of their assigned responsibilities. Field trips are extensions of the instructional program. Activity trips are athletic trips or other competitive events, and other outings. Trips range from a few miles to those extending over several days and covering large distances. The following items need to be considered when developing criteria for activity trip transportation:

A. Policies and Guidelines.

1. Purpose of trip (instructional, athletic, recreational, etc.).
2. Funding source (district or individual school funds, individual charge, parent group, etc.).
3. Administrative approval.
 - (a). Person who has authority must approve trip.
 - (b). A priority guideline should be developed for trip scheduling if all requests cannot be accommodated.
4. Advance notification. Allow adequate time for approval process and for making driver and vehicle arrangements.
5. Methods of travel. District owned or contracted bus, commercial carrier or local transit equipment, private or school passenger automobile.
6. Trip Request Form. This form should include all necessary information for trip arrangements, payroll, reimbursement, and other local needs. (See Appendix 12.)
7. Chaperons. An adult chaperon should be required on all activity trips. Responsibilities of chaperons should include passenger control, with the bus driver maintaining final authority.
8. Discipline and emergency medical procedures. A trip release to be signed by parents should include procedures concerning difficult or severe behavioral and medical problems and emergency policies.
9. Communication. Drivers, pupils, chaperons, and parents should be made aware of applicable rules and regulations. Parents should have destination information, mode of transportation, chaperon names, departure and return times, appropriate dress, and what the pupils should bring with them. A signed note from the parent or guardian is important. A detailed itinerary for all persons involved may be advisable. Identification of special medical problems in the event of an emergency en route is necessary.
10. Luggage. A procedure should be provided for transporting luggage or equipment separate from the passenger compartment.
11. Out-of-state trips. Policies should detail whether out-of-state trips are permitted and any applicable restrictions. Regulations for states to be visited should be reviewed prior to the trip.
12. Insurance policies. Policies should be reviewed or agents contacted to determine adequacy of coverage. This is an absolute necessity for trips scheduled to another state. If privately-owned vehicles or commercial contract carriers are used, the board of education should determine the minimum insurance coverage to be carried. A current copy of the contract or commercial carrier's insurance should be on file with the school district.

13. Road and weather check. A person responsible for checking road conditions should be designated. School transportation personnel from other districts, state patrols, highway departments, and auto clubs are generally cooperative in supplying road information. If warranted, the weather bureau should also be contacted. A planned route and any contingent route for trips should be determined prior to initiation of the trip.

14. Contingency plans. Policies should detail who has authority to make decisions if the unexpected happens during a trip. Impassable roads, accidents, or mechanical breakdowns are examples. Drivers and chaperons should have access to that authority's phone number. It is also advisable to obtain phone numbers of transportation personnel in various school districts where activity vehicles regularly travel. Provisions should include plans for staying overnight if conditions do not permit a safe trip home.

15. Driving hours. School districts shall have regulations based on the Bureau of Motor Carriers Safety Manual: Maximum of 15 hours of duty of which 10 hours are driving time; 8 hours continuous off-duty prior to a long trip; no more than 60 hours driving in a week.

16. Driver selection. Criteria for driver assignments are necessary to avoid conflict and confusion. The criteria should include a driver's knowledge, skill, experience, and familiarity with activity trip vehicles. The area to be traveled should also be a consideration. Drivers should be notified at least three days in advance of trip date. Drivers who only drive trips occasionally should be periodically tested for driving ability and vehicle familiarity. They must hold the same license and certification as regular school bus drivers if they are driving a school bus.

B. Vehicle and equipment. The following should be taken into consideration when selecting trip vehicles:

1. Miles to be traveled.
2. Terrain and climate.
3. Number and age of pupils.
4. Luggage and equipment.
5. Driver familiarity with the vehicle and route.
6. Luggage storage.
7. Traction devices.
8. Public address system.
9. Radio (A.M., C.B., or two-way).
10. Tires (recaps on front wheels are prohibited.)
11. Spare tire.

C. To determine equipment requirements for an extended trip, it is advisable to communicate with transportation personnel at the destination.

D. The driver should carry cash for telephone, fuel, tolls, parking fees, and personal needs.

E. Inspection. If a school bus is used, it must pass the same inspections as regular route buses and a detailed check must be done prior to activity trips.

F. Training. Specialized training should be provided for activity trip drivers. Training should include the following:

1. State laws and applicable policies and rules.
2. Familiarity with activity trip vehicle and its components.
3. Familiarity with specialized equipment and how to use it.
4. Familiarity with local and state trip requirements.
5. Route familiarization. This might include a dry run prior to the trip date, especially if extreme conditions, hazardous terrain, or road difficulties may be encountered.
6. Discipline procedures on trips.
7. Driving under adverse conditions such as driving at night over slippery roads, or driving in unfamiliar territory.
8. Destination location and parking areas. Maps should be made available to drivers.
9. Provisions for bus security at destination.
10. Knowledge of first aid practices.
11. Emergency procedures.
12. Other items (e.g., pupil counts, required reports, convoy procedures, etc.)

RECORDS

A. Accident records.

Accident records function as the data base for statistical analysis which, in turn, provides material for accident prevention programs. In addition to the Uniform School Bus Accident Report Form, additional accident records may include:

1. A list of pupils injured, their home addresses, phone numbers, the extent of their injuries, and appropriate explanations.
2. A list of bus occupants and witnesses including addresses, phone numbers, and statements.
3. Extent of damage and estimate of repair costs.
4. Post-accident data, e.g., disposition of litigation or summons, driver deposition, net effect of personal injuries, etc.
5. A signed statement from the bus driver concerning the particulars of the accident.

B. Personnel records.

Personnel records should contain the following types of information:

1. Applications from all employees. In considering application formats, districts should verify acceptable questions with state human rights agencies. Do not permit questions relative to age, sex, marital status, veteran's status, or ethnicity, but do include the following:

- (a). Confirmed work history.
 - (b). Driving record.
 - (c). Criminal convictions.
2. Physical examination.
3. Training and testing.
- (a). Behind the wheel.
 - (b). Knowledge.
 - (c). Hours of instruction.
4. Payroll record.
- (a). Absences and their causes.
 - (b). Current wages.
 - (c). Years of service.
5. Complaints, commendations, evaluations, etc.
6. Alcohol and drug testing record.

C. Organizational records.

- 1. Number of employees.
- 2. Wage scales.
- 3. Alcohol and drug testing records.
- 4. Other records as required.

D. Route records.

- 1. Complete route map for all routes.
- 2. Completed statistical summary listing miles, minutes, route type, student count, etc.
- 3. Information about the needs of disabled students.

- E. Maintenance records.
 - 1. Line setting tickets.
 - 2. Work orders.
 - 3. Preventive maintenance records.
- F. Equipment specifications.

COMMUNICATION

It is necessary to keep school district administrators, parents, and pupils informed of all operational procedures. The school district must ensure that the channels of communication guarantee that information can be disseminated quickly and effectively. The school district must ensure that inquiries, requests, suggestions, and recommendations are given prompt and appropriate attention and are handled efficiently. Some of the ways information can be disseminated are:

- A. Bulletins: To explain the school district's transportation policy to school administrators, teachers, drivers, parents, pupils, and others associated with the operation and to clarify new laws and safety policies so that everyone knows what is expected of them.
- B. Meetings: To provide an opportunity for those associated with the school transportation program to share their views and to help build broad community support for safe transportation.
- C. Public Press: To inform parents of policy, route, stop, and schedule changes; of the safety record of the operation; and of positive driver achievement records.
- D. Conferences: To discuss solutions to disciplinary problems with drivers and with disruptive pupils; to review policy decisions affecting drivers, contractors, pupils, and school administrators.
- E. Letters: To inform parents of all school and state regulations, new routes, etc.; reply to more urgent inquiries regarding pupil transportation safety, policies, and procedures.
- F. Telephone Calls: To provide quick contact between bus drivers and the school, or between parents and the school in the event of urgent or emergency situations.
- G. Radio and/or Television: To inform the public of procedures the schools will follow in case of severe weather conditions or other natural phenomena, new policies, laws, etc.

FINANCE

FINANCIAL REPORTING

Each school district operates motor vehicles of many sizes and types, such as school buses, small and large trucks, cars for administration and driver training, pickups, delivery vans, and other miscellaneous small motor vehicles. All school district vehicle operating costs must be charged to the appropriate individual account or accounts according to their use. Costs for transporting eligible students to and from school shall be accounted for separately in accordance with state-approved procedures.

A. All pupil transportation expenses are to be recorded in object codes 100-800 as listed below. Accurate mileage records shall be kept by "program" so eligible miles can be determined. No indirect costs are allowed.

- (100) Salaries
- (200) Employee Benefits
- (400) Purchased Property Services
- (500) Other Purchased Services
- (600) Supplies and Materials
- (700) Property
- (800) Other Objects

B. Financial worksheets shall be maintained throughout the fiscal year for each of these categories for audit purposes.

<u>Code</u>	<u>Description</u>
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100	Salaries
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152 Clerks, Secretaries and Trainers. The salary to be paid to a clerk and other personnel should be closely related to the supply and demand in the local area. If a secretary is employed in the Pupil Transportation Department, duties should at least include record keeping, answering the telephone, and maintaining liaisons with parents and other workers. Office space for the secretary should be located at the garage/operation site.

171 Supervisor. Under the pupil transportation finance formula (see Section 111.03), the salary of the supervisor, like all other salaries, is determined by the local board. The Utah State Office of Education recommends that full-time directors/supervisors of pupil transportation be paid at the same rate as other professional directors in the school district organization. The salary should be commensurate with responsibility. In setting the salary level, the local board should include the following factors in its deliberations:

1. The number of school buses.
2. The number of eligible pupils transported.
3. The supervisor's total responsibility relative to other supervisory functions.

172 School Bus Drivers. School bus driver salaries will vary in the districts due to local district employment policies, availability of qualified personnel in the area, labor cost index figures, and other general local school district policies.

1. To-and-From School Wage Time Includes:

- (a). Pre-trip Inspection Time (10 minutes).
- (b). Actual Driving Time and Dead Time.
- (c). Post-trip Inspection and Bus Clean-up Time (10 minutes).
- (d). Bus Repair/Servicing and Fueling (10 minutes).

EXAMPLE: Pre-Trip Inspection:	10 MINUTES
Combined Driving Time and Dead Time:	2 HOURS 40 MINUTES
Post-Trip Inspection and Bus Clean Up Time:	10 MINUTES
Bus Repair/Servicing and Fueling:	10 MINUTES
TOTAL TIME PAID:	3 HOURS 10 MINUTES

2. Wage time for field trips may be set at a minimum if it is necessary to attract drivers for otherwise limited assignments. A two-hour driving time minimum is not unreasonable. Districts pay driver wages and benefits for field trips with transportation levy revenues.

3. Activity trip wage time includes the four items from Section 1 above and a reduced wage for the layover time involved. Districts may pay driver wages and benefits for activity trips with transportation levy revenues.

- 173 Mechanics. The salary to be paid to a mechanic will be closely related to the supply and demand in the local area.
- 199 Other Classified Transportation Personnel. Custodians to clean office, training room, rest rooms, and shop only.
- 200 Employee Benefits.
- 210 Social Security.
- 220 Retirement.
- 240 Employee Health and Accident/Life Insurance.

Wages and benefits charged to these F-4 accounts are those paid to pupil transportation personnel only. If the individual divides his or her time between pupil transportation and other district sections, only the proportional share of the salary and benefits related directly to pupil transportation work is charged to these accounts.

270 Industrial Insurance. This pupil transportation account is charged for the premium. For self-insured districts, only the actual claim amount paid is charged to this account.

280 Unemployment Insurance. Unemployment compensation taxes paid by district on behalf of transportation employees.

- 400 Purchased Property Services.

421 Water and Sewer for Garage.

440 Maintenance by Private Garage (labor and materials). Charges for labor and materials must be identified on invoice for each bus on which work is done. Work to be done on buses should be identified and approved by a school district official. Documentation must be available for an audit.

441 Garage Equipment Repair. For repair to garage equipment when done by a contractor for complete job.

452 Rent. Expenditures for the rental of buildings and equipment for pupil transportation.

500 Other Purchased Services.

511 Pupil Transportation Services From Other LEA--In-State.

512 Student Transportation Services From Other LEA--Out-of-State.

513 Commercial Contracts. When school districts contract or lease for the pupil transportation program, allocations are calculated as though the district owns the buses.

514 Student Allowance.

1. Allowances to students will be kept to a minimum in accordance with these guidelines. Student allowance will be paid from state funds only for transportation to the nearest bus stop or school, whichever is closer.

2. Travel allowances paid in lieu of school district-supplied transportation of eligible students are intended to reimburse out-of-pocket costs for reasonable and necessary travel in connection with student transportation. The allowance shall not be less than the standard mileage rate deduction permitted by the United States Internal Revenue Service for charitable organizations, nor greater than the reimbursement allowance permitted by the Utah Department of Administrative Services for use of privately-owned vehicles, as set forth in the State of Utah Travel Regulations.

3. The trip mileage is paid for by the car (one per family). Two round trips between the student's home and the bus stop or school (whichever is shorter) are paid. No extra amounts are allowed. The allowance is made to the student and is not to be confused with paying the parents to transport their own children or other students. This does not restrict parents from pooling their resources on their own, but it does restrict payments in excess of out-of-pocket costs for this transportation.

4. If students or parents are unable to provide transportation, as determined by the school district, with prior state approval, an amount equivalent to the student allowance will be paid to the school district to help pay the costs of district transportation.

5. "Days of attendance" for these purposes shall mean **the pupil's ADM as recorded in the school district's records**. The mileage, number of days involved, and amount paid to the parent or student shall be recorded in the district's records. State payment is then claimed on "Schedule B" of the State Report.

515 Subsistence.

1. Parents will be reimbursed for room and board for pupils who do not have school facilities or bus service available within approximately 60 miles. Payments will not exceed the "Substitute Care Rate for Family Services" for the current fiscal year. Any changes to this rate will be adjusted to reflect this

change during the year. In addition, two round trips per year are allowed for actual miles between home and school at the Student Allowance rate discussed under cost code 514 above. Actual amounts paid are reported on Schedule B for state reimbursement.

2. If parents maintain a separate home during the school year for the purpose of closer location to a school for their children, reimbursement for subsistence will not apply. Wherever the parent lives during the school year is the residence for those pupils at that time.

516 Payment of Auto Mileage in Lieu of Bus Deadhead Miles. Caution: Use of cars may be subject to IRS regulations.

521 Property and Comprehensive Insurance. Identify the costs by bus. Each district should have backup documents showing pupil transportation costs only.

522 Liability Insurance. School districts that use Tort Liability to pay for school bus liability should not make charges to this account. If the levy tax rate for Tort Liability does not cover all these costs, the proportionate amount may be charged here. Records should be kept to justify these charges.

530 Communications. Telephone expenses for garage.

580 Travel (supervisors only). Travel for supervisors to transportation workshops or national conventions.

581 Per Diem (bus drivers). Per diem for bus drivers is not paid by the state. When per diem is paid on bus trips identify the costs here, but identify such costs by a separate budget code (581, 582, etc.).

600 Supplies and Materials

610 Miscellaneous Supplies (office). Supplies for pupil transportation office.

624 Fuel. At appropriate intervals it is suggested that the total miles divided by the average miles per gallon be compared with the summation of gas pumped out. Also compare with total gallons of gas purchased. Any differences should be explained.

625 Natural Gas for garage. Pro-rate this expense if garage is used for other purposes besides pupil transportation.

626 Electricity. Same information applies as in 625 Natural Gas.

681 Oil and Grease. Make charges to the appropriate accounts for usage not related to pupil transportation.

682 Tires and Tubes. Make charges to the appropriate accounts for usage not related to pupil transportation.

683 Repair Parts. Make charges to the appropriate accounts for usage not related to pupil transportation.

684 Repair Parts for Garage Equipment. Use this code when repairs of equipment are done by school district personnel. Charge the material costs to this account.

700 Property.

732 New Buses. The purchase of buses shall be charged to capital outlay.

780 Depreciation. Depreciation allowance for each school district will be computed as follows:

1. Current state contract price of the standard equipped 84-passenger bus is divided by the expected life of the bus, currently set at 200,000 miles. This rate is paid for Schedule A mileage, but not for activity or field trip mileage.

2. The bus inventory listings (Type A, B, C, & D school buses) for each school district should be kept up-to-date and the exact cost shown to the nearest dollar for each school bus. School buses physically on hand as of October 1 and listed on the bus inventory will be paid depreciation at the state-approved rate per mile for route mileage only. The payment rate will be adjusted each year according to the state contract bus price.

800 Other Expenses. Expenses of uniforms, safety periodicals, cleaning of bus drivers' uniforms (if funded), physical examinations, and other related expenses are allowable at district option.

891 Training Expenses.

1. Tuition, instructors' fees, films, slides, other training materials, per diem while at the training school, travel costs, and labor costs are allowable at district option.

2. Below is a chart that indicates the guideline amounts used by the state in determining approximate amounts included in the finance formula for the labor cost portion for each type of pupil transportation training that each bus driver successfully completes.

GUIDELINE FOR BUS DRIVER TRAINING ALLOWANCES

BASIC COURSE	INSERVICE	DEFENSIVE DRIVING	EMERGENCY CARE
18 Hours	8 Hours	8 Hours	8 Hours
\$144	\$64	\$64	\$64

Other new codes not directly related to Schedules A or B:

594 Admission Charges.

1. Admission charges for lyceums and similar productions should come from the special .0003 tax rate.

2. Special state educational field trip money (educational field trips made available with special legislative funding). The students should be participants in a learning situation. The trip should be programmed and organized so that it becomes an extension of the classroom.

3. Participants directly involved in competitive music, drill teams, speech arts, and commercial events are not educational field trips, but rather activity trips.

4. Sports events are considered to be activity trips, not field trips.

5. If any educational field trip funds are used for admissions to lyceums, those expenditures should be identified (594 Account).

6. Records. For educational field trips under special state appropriation, a school must keep records to show the following:

(1). The number of bus miles and students transported for educational field trips.

(2). All expenditures not related directly to the above should be identified.

(3). Method of Allocating Fund. State funds for this program, when allocated by the legislature, will be distributed to school districts on ADM based on each district's proportionate share of total small schools, kindergarten, and grades 1-12 WPUs. Unused funds from this program may be carried over to future years but they remain restricted money.

(4). Indirect Costs. No provisions are made for the payment of indirect costs under this program.

LEGAL REFERENCES

State allocations are based on the cost of transporting students from home to school and from school to home once each day, required deadhead miles, after-school runs, approved runs for disabled and vocational students attending school outside their regularly assigned attendance boundary, and a pro-rated portion of the bus purchase price.

A. Utah Code, Title 53A.

1. 53A-17a-126: The State's contribution. . . for state-supported transportation of public school students is apportioned and distributed in accordance with Section 53A-17a-127. Each district shall receive its approved transportation costs except that if during the fiscal year the total transportation allowance for all districts exceeds the amount appropriated, all allowances shall be reduced pro rata to equal not more than that amount.

2. 53A-17a-127(3)(a): Transportation monies shall be distributed to school districts based on three factors:

(a). An allowance per mile for approved bus routes;

(b). An allowance per hour for approved bus routes; and

(c). An allowance for equipment and overhead costs based on approved bus routes and the age of the equipment.

3. 53A-17a-127(3)(b): In order for a bus to be considered for the equipment allowance, it must meet federal and state regulations and standards for school buses.

4. 53A-17a-127(3)(c): The allowance per mile, the allowance per hour, and the annual equipment and overhead allowance shall be reviewed annually by the State Office of Education and adjusted to reflect current economic conditions.

5. 53A-17a-127(4)(a): Approved bus routes for funding purposes shall be determined on fall data collected by October 1.

6. 53A-17a-127(4)(b): Approved route funding shall be determined on the basis of the most efficient and economic routes.

7. 53A-17a-127(5): A Transportation Advisory Committee with representation from local school superintendents, business officials, school district transportation supervisors, and the State Office of Education shall serve as a review committee for addressing school transportation needs, including recommended approved bus routes.

8. 53A-17a-127(6): A local school board may provide for the transportation of students who are not eligible under Subsection (1), regardless of the distance from school, from: (a) general funds of the district; and (b) a tax rate not to exceed .0003 per dollar of taxable value imposed on the district.

9. 53A-17a-127(7): Revenue from the [Special Transportation Levy] may also be used to pay for transporting participating students to interscholastic activities, night activities, and educational field trips approved by the local school board and for the replacement of school buses.

B. Utah Administrative Code

1. R277-600-10A: Costs for district transportation of students which are not reimbursable may be paid for from general funds of the district or from the proceeds of a tax rate authorized for districts. The tax rate authorized for transportation may not exceed .0003 tax rate. The revenue may be used:

- (a). To transport ineligible students to and from school;
- (b). For transportation to interscholastic activities;
- (c). For transportation to night activities; and
- (d). For field trip admissions.

2. R277-600-11B(1): [A] district shall not be penalized in the computation of its state allocation for the presence on a to-and-from school route of an ineligible student who does not create an appreciable increase in the cost of the route[.]

3. R277-600-11B(2): [T]here is an appreciable increase in cost if, because of the presence of ineligible students, any of the following occur:

- (a). Another route is required;
- (b). A larger or additional bus is required;
- (c). A route's mileage is increased;
- (d). The number of pick up points below the mileage limits for eligible students exceeds one.

3. R277-600-11B(3): [I]neligible students may ride buses on a space available basis. An eligible student may not be displaced or required to stand in order to make room for an ineligible student.

4. R277-600-10B: Transportation of students in areas where walking constitutes a hazardous condition, as determined by the local board, may be provided by the Board from general funds from the district or from the tax specified in Subsection 10A. An area is determined to be hazardous on the basis of an analysis of the following factors:

- (a). Volume, type, and speed of vehicular traffic;
- (b). Age and condition of students traversing the area;

(c). Condition of the roadway, sidewalks and applicable means of access in the area; and

(d). Environmental conditions.

5. R277-600-11A: When undue hardships and inequities are created through exact application of these standards, districts may make a request for an exception to these rules on individual cases.

If a district has a policy of permitting eligible students to stay at school following the close of the normal school day to participate in school-sponsored student activities, such students may be transported home following the after-school activity even though the bus they normally ride has previously made one trip from school to home to deliver students who elected not to stay at school for after-school activities. Once students have been delivered home from the school, the district may not transport them back to school for an activity and then home again at state expense. Rules and policies shall encourage efficiency and economy in operating and maintaining school buses, in salary and benefit plans, and other expenses of transporting eligible pupils as defined in these standards.

TRANSPORTATION FINANCE FORMULA

Total state aid for to-and-from school transportation is the sum of Schedules A and B. Schedule A is comprised of (1) an allowance for mileage, (2) an allowance for time, and (3) an allowance for equipment (school buses) and administration (front office salaries and benefits). Schedule B is comprised of miscellaneous pupil transportation expenses that are not "formula" driven.

A. Schedule A: Under the provisions of Section 53-7-18.1 of the Utah Code, school districts are apportioned state transportation funds for transporting eligible pupils "to and from school." "Schedule A" of the pupil transportation budget is based on transporting students from home to school and from school to home once each day, required dead miles, after school routes, approved disabled pupil routes, vocational routes, the capital cost of buses, and the salaries of office administrators. Schedule A is that portion of a school district's pupil transportation funding derived by formula. Each year, prior to applying the formula to school district time and mileage data to determine funding, four ALLOWANCE RATES must be calculated. These four ALLOWANCE RATES are the independent variables used in the formula. They are the Time Allowance Rate, the Mileage Allowance Rate, the Depreciation Allowance Rate, and the Administration Allowance Rate.

1. The Time Allowance is paid at a rate that reflects the STATE AVERAGE COST PER MINUTE for driver salaries, retirement, Social Security, and health and accident insurance as reported on the F-4 financial report.

2. The Mileage Allowance is paid at a rate that reflects the STATE AVERAGE COST PER MILE for bus fuel, lubrication, tires/tubes, and repair parts as reported on the F-4 financial report.

3. The Depreciation Allowance is paid at a rate that amortizes the current state contract price of a standard equipped 84 passenger bus over the expected life (200,000 miles) of the bus.

4. The Administration Allowance is intended to provide funds for the salaries and benefits of district transportation administrators. The calculation for administrative allowance consists of three parts: An allowance for pupils transported, an allowance for route minutes, and an allowance for route miles.

B. Sample Formula Calculation Exercise:

Step One: Routes are separated into two groups. Routes in the first group are called "Type A" routes. These routes are similar in time and distance for the morning and afternoon runs, so these are routes for which the one-way mileage and time data can be "doubled" to arrive at **total** route time and mileage. The second group consists of routes that have morning and afternoon runs that are significantly different in time and mileage. They are called "Type B" routes. Because the a.m. and p.m. runs are significantly different for Type B routes, the one-way data cannot simply be "doubled" to arrive at **total** time and mileage. Instead, the a.m. run and p.m. run for Type B routes will be calculated separately, as though they are individual routes.

Step Two: Street maps are prepared for each to-and-from bus route to include labeling of streets and locations of schools. Not all streets need to be labeled, only enough to clearly orient the user of the map. Maps will clearly identify beginning and ending points of routes, all bus stops along the routes, the number of students picked up or dropped off at each stop, and portions of each route traveled in deadhead status. Prepare one map for "Type A" routes. Prepare an a.m. map and a p.m. map for all "Type B" routes. [Note: Kindergarten routes are one-way only and are therefore "Type B" routes.]

Step Three: The daily one-way time in minutes and the daily one-way distance in miles traveled by approved school buses on approved to-and-from routes as they appear on the maps are measured. Two separate sets of measurements are required for each map:

1. The minutes and miles traveled with students on board.
2. The minutes and miles traveled in deadhead status.

BOTH sets of data are required for funding. Minutes are measured to the whole minute. Miles are measured to the tenth of a mile.

Step Four: A separate "Route Data" spreadsheet is prepared by the transportation director of the school district. Route minutes, miles, dead minutes, dead miles, route type, and other data are included. The spreadsheet is submitted with the route maps on November 1 each year. The annual budget is prepared using the data provided on this spreadsheet. Calculations are as shown in Steps Five through Thirteen.

Step Five: Calculate One-way Route Minutes. To calculate one-way route minutes, add "Minutes Expended Per Route" and "Dead Minutes Per Route" from the route map label. Multiply this sum by the annual number of days the route is run.

STEP 5: CALCULATE ONE-WAY ROUTE MINUTES

ROUTE	MINUTES EXPENDED PER ROUTE	PLUS	DEAD MINUTES PER ROUTE	MULTI- PLIED BY	NUMBER OF DAYS PER YEAR	EQUALS	ONE-WAY ROUTE MINUTES
6	90	+	76	X	183	=	30,378
6	85	+	50	X	183	=	24,705
8	35	+	50	X	183	=	15,555
9	175	+	65	X	183	=	43,920
11	50	+	20	X	175	=	12,250
12	95	+	30	X	183	=	22,875
16	24	+	96	X	183	=	21,960
21	58	+	30	X	183	=	16,104
TOTAL							187,747

Step Six: Calculate Inspection Minutes. Thirty minutes per day per bus is multiplied by the number of days buses are used on to-and-from routes during the year. The purpose of this computation is to compensate districts for thirty minutes of driver time per bus per day for bus cleaning and inspection. Note that this is NOT a per route computation, it is a per bus computation.

STEP 6: CALCULATE INSPECTION MINUTES

ROUTE NUMBER	BUS NUMBER	MULT I-PLIED BY	30 MINUTES PER ROUTE DAY	MULT I-PLIED BY	NUMBER OF DAYS PER YEAR	EQUALS	TOTAL INSPECTION MINUTES
6	73 (1)	X	30	X	183	=	5,490
6	73 (0)	X	30	X	183	=	0
8	73 (0)	X	30	X	183	=	0
9	57 (1)	X	30	X	183	=	5,490
11	57 (0)	X	30	X	175	=	0
12	57 (0)	X	30	X	183	=	0
16	48 (1)	X	30	X	183	=	5,490
21	48 (0)	X	30	X	183	=	0
TOTAL							16,470

Step Seven: Calculate Total Route Minutes. Since the sums of minutes calculated in Steps Five and Six are one way, route time for Type A routes must be doubled to get an accurate total. For Type A routes, multiply One-way Route Minutes from Step Five by 2, then add Inspection Minutes. This total is called "Total Route Minutes" for Type A routes. Sum all "Route Minutes" for Type B routes, then add Inspection Minutes. This total is called "Total Route Minutes" for Type B Routes. Add "Total Route Minutes" for Type A and Type B routes.

STEP 7: CALCULATE TOTAL ROUTE MINUTES

TYPE A ROUTES	ONE-WAY ROUTE MINUTES	MULTI-PLIED BY	TWO	PLUS	INSPECTION MINUTES	EQUALS	TOTAL ROUTE MINUTES
8	15,555	X	2	+	0	=	31,110
9	43,920	X	2	+	5,490	=	93,330
12	22,875	X	2	+	0	=	45,750
16	21,960	X	2	+	5,490	=	49,410
21	16,104	X	2	+	0	=	32,208
SUBTOTAL							251,808
TYPE B ROUTES							
6	30,378			+	5,490	=	35,868
6	24,705			+	0	=	24,705
11	12,250			+	0	=	12,250
SUBTOTAL							72,823
TOTAL ROUTE MINUTES, TYPE A AND TYPE B							324,631

Step Eight: Calculate One-way Route Miles. To calculate One-way Route Miles, add "Miles Traveled Per Route" and "Dead Miles Per Route." Then, multiply this sum by the annual number of days the route is run.

STEP 8: CALCULATE ONE-WAY ROUTE MILES

TYPE A ROUTES	MILES TRAVELED PER ROUTE	PLUS	DEAD MILES PER ROUTE	MULTIPLIED BY	NUMBER OF DAYS PER YEAR	EQUALS	ONE-WAY ROUTE MILES
6	40.5	+	12.7	X	183	=	9,735.6
6	70.4	+	18.9	X	183	=	16,341.9
8	12.2	+	10.2	X	183	=	4,099.2
9	47.0	+	7.0	X	183	=	9,882.0
11	18.5	+	6.3	X	175	=	4,340.0
12	41.9	+	6.1	X	183	=	8,784.0
16	6.5	+	14.3	X	183	=	3,806.4
21	18.1	+	0.0	X	183	=	3,312.3
TOTAL							60,301.4

Step Nine: Calculate Total Route Miles. Since the miles calculated in Step Eight are one way, route mileage for Type A routes must be doubled to get an accurate total. For Type A routes, multiply One-way Route Miles from Step Eight by 2. This total is called "Total Route Miles" for Type A routes. Sum all "Route Miles" for Type B routes. This total is called "Total Route Miles" for Type B Routes. Add "Total Route Miles" for Type A and Type B routes. This sum is called "Total Route Miles" as in table below.

STEP 9: CALCULATE TOTAL ROUTE MILES

TYPE A ROUTES	ONE-WAY ROUTE MILES	MULTIPLIED BY	TWO	EQUALS	TOTAL ROUTE MILES
8	4,099.2	X	2	=	8,198.4
9	9,882.0	X	2	=	19,764.0
12	8,784.0	X	2	=	17,568.0
16	3,806.4	X	2	=	7,612.8
21	3,312.3	X	2	=	6,624.6
SUBTOTAL					59,767.8
TYPE B ROUTES					
6	9,735.6			=	9,735.6
6	16,341.9			=	16,341.9
11	4,340.0			=	4,340.0
SUBTOTAL					30,417.5
TOTAL ROUTE MILES, TYPE A AND TYPE B					90,185.3

Step Ten: Calculate Time Allowance. Multiply Total Minutes by the approved Time Allowance Rate. The approved rate for fiscal year 2005 is \$0.34 PER MINUTE.

STEP 10: CALCULATE TIME ALLOWANCE

ROUTE NUMBER	TOTAL ROUTE MINUTES	MULTIPLIED BY	TIME ALLOWANCE RATE	EQUALS	TIME ALLOWANCE
6	35,868	X	\$0.34	=	\$12,195
6	24,705	X	0.34	=	8,400
8	31,110	X	0.34	=	10,577
9	93,330	X	0.34	=	31,732
11	12,250	X	0.34	=	4,165
12	45,750	X	0.34	=	15,555
16	49,410	X	0.34	=	16,800
21	32,208	X	0.34	=	10,951
TOTAL	324,631				\$110,375

Step Eleven: Calculate Mileage Allowance. Multiply Total Miles by the approved Mileage Allowance Rate. The approved rate for fiscal year 2005 is \$0.32 PER MILE.

STEP 11: CALCULATE MILEAGE ALLOWANCE

ROUTE NUMBER	TOTAL ROUTE MILES	MULTIPLIED BY	MILEAGE ALLOWANCE RATE	EQUALS	MILEAGE ALLOWANCE
6	9,735.6	X	\$0. 32	=	\$3,115
6	16,341.9	X	0.32	=	5,229
8	8,198.4	X	0.32	=	2,624
9	19,764.0	X	0.32	=	6,720
11	4,340.0	X	0.32	=	13,888
12	17,568.0	X	0.32	=	5,622
16	7,612.8	X	0.32	=	2,436
21	6,624.6	X	0.32	=	2,120
TOTAL	90,185.3				\$28,859

Step Twelve: Administration and Equipment Allowance is a three-part computation.

Part 1. Part 1 involves three calculations: (1) Using the number of actual student riders per route, both regular and special education, multiply the total to the .6 exponential power, then multiply the result by \$500. (2) Calculate "Total Minutes" to the .6 exponential power then multiply by \$3.00. (3) Calculate the "Total Miles" to the .6 exponential power, then multiply by \$13.00. Sum the totals from each of these calculations. In the table on the following page, a hypothetical number of student riders has been inserted for each route. The miles that were used are total miles in **Step 10, above** and the minutes that were used are the total minutes

used in **Step 11, above.**

Part 2. Multiply "Total Mileage" by the Equipment Allowance Rate of \$0.36 per mile.

Part 3. Sum the amounts calculated in Parts 1 and 2. This total is called the "Administration and Equipment Allowance."

STEP 12: CALCULATE ADMINISTRATION AND EQUIPMENT ALLOWANCE

PART 1: ADMINISTRATION ALLOWANCE

Pupil ridership statistics are used in the first calculation of the Administration Allowance. The calculation for Pupil Allowance uses the total number of students actually bused on all routes, NOT the number of **eligible** riders. It is not a factor in any other part of the formula. The first step in the administration allowance uses the total number of actual student riders of all routes.

Route Number	Number of Pupils Bused
6	84
6	78
8	67
9	80
11	75
12	72
16	68
21	79
Total	603

The following page shows the calculations necessary when determining the allowance for administrative costs such as salaries and benefits for district administrators and transportation office personnel.

Calculation #1:

Number of students actually bused to .6 power X \$500.

The total number of students bused is 603.

603 to the .6 power = 46.579024

46.579024 x \$500 = \$23,290

\$23,290 = Total allowance for pupils bused*

Calculation #2:

Number of minutes to .6 power X \$3.00.

The total minutes for the eight routes = 324,631.

324,631 to the .6 power = 2026.9078

2026.9078 x \$3.00 = \$6,081

\$6,081 = Total allowance for minutes*

Calculation #3:

Number of miles to .6 power X \$13.00

The total mileage for the eight routes = 90,185.3.

90,185.3 to the .6 power = 939.89957

939.89957 x \$13.00 = \$12,219

\$12,219 = Total allowance for mileage*

The allowances for each of the three calculations are added together to determine the total Administrative Allowance:

Pupil Allowance	Time Allowance	Mileage Allowance	Total Administration Allowance
\$23,290	\$6,081	\$12,219	\$41,589

PART 2: EQUIPMENT ALLOWANCE

ROUTE NUMBER	TOTAL ROUTE MILEAGE	MULTIPLIED BY	EQUIPMENT ALLOWANCE RATE	EQUALS	EQUIPMENT ALLOWANCE
6	9,735.6	X	\$0.39	=	\$3,797
6	16,341.9	X	0.39	=	6,373
8	8,198.4	X	0.39	=	3,197
9	19,764.0	X	0.39	=	7,708
11	4,340.0	X	0.39	=	1,693
12	17,568.0	X	0.39	=	6,852
16	7,612.8	X	0.39	=	2,969
21	6,624.6	X	0.39	=	2,584
SUBTOTAL					\$35,173

* Rounded to the dollar.

PART 3: COMBINE ADMINISTRATION AND EQUIPMENT ALLOWANCES

ADMINISTRATION ALLOWANCE	PLUS	EQUIPMENT ALLOWANCE	EQUALS	ADMINISTRATION AND EQUIPMENT ALLOWANCE
\$41,589	+	\$35,173	=	\$76,762

Step Thirteen: The amounts calculated in Steps Ten, Eleven, and Twelve are summed. This is the district's Schedule A Revenue.

STEP 13: CALCULATE TOTAL SCHEDULE A ALLOWANCE

TIME ALLOWANCE	\$110,375
+ MILEAGE ALLOWANCE	28,859
+ ADMINISTRATION AND EQUIPMENT ALLOWANCE	76,762
= TOTAL SCHEDULE "A "ALLOWANCE	\$215,996

C. Schedule B is a request for state reimbursement for miscellaneous, non-formula related expenses incurred in transporting eligible students to and from school or providing school-related subsistence to students. As part of the November 1 data submission, each district will complete the Schedule B request form, a copy of which is shown on the following page.

D. Proration: The *Utah Code*, at 53A-17a-126, requires that whenever the total allowance generated by the transportation finance formula under Schedule A, together with the total of Schedule B, exceeds the amount allocated by the Utah State Legislature, the allowance must be reduced prorata to equal the allocation.

**UTAH STATE OFFICE OF EDUCATION
PUPIL TRANSPORTATION
Miscellaneous Expenditure Report
Schedule B**

_____ School District hereby certifies that it shall expend or has expended funds in the below listed expenditure classifications and amounts in providing transportation for eligible students and requests reimbursement from the State of Utah.

_____ Signature of Superintendent

_____ Signature of Transportation Supervisor

_____ Date of Submission

DIRECTIONS: This report is submitted on November 1 with the Time and Mileage Report. It lists estimated Schedule B expenditures for the current school year. For cost codes 511, 512, and 513, enter the ANNUAL expenditure in the expenditure column. For cost codes 514, 515, and 516, enter the mileage in the mileage column and the estimated dollar amount in the expenditure column. Sum the amounts in the expenditure column at the bottom of the form.

ACCOUNTING CODE	EXPENDITURE DESCRIPTION	ANNUAL MILEAGE	ANNUAL EXPENDITURE
511	In-state tuition paid	N/A	\$
512	Out-of-state tuition paid	N/A	\$
513	Commercial non-contract (Taxi, UTA)	N/A	\$
514	Student Allowance (Payments to students in lieu of bus service). Attach names, addresses, and description of services.		\$
515	Subsistence (room and board and home visits). Attach names, addresses, and description of services.		\$
516	Payment of auto mileage in lieu of deadhead bus mileage.		\$
TOTAL CLAIM			\$

TRANSPORTING STUDENTS WITH DISABILITIES

INTRODUCTION

The purpose of this section of the operations manual is to provide standards for those entrusted with responsibility for transporting pupils requiring special care during loading, transporting, and unloading. This section is concerned with identification of the procedures that apply to the transportation of students with disabilities. Special attention has been given to (a) development of general principles, (b) identification of major characteristics of students with disabilities, (c) pupil needs relating to class placement, (d) behavioral actions that can be anticipated and the resulting corrective actions to be taken, (e) types of medical concerns to be dealt with in an efficient and professional manner, and (f) development of emergency pupil management procedures. Few of the procedures are discussed in detail. All have been treated in sufficient depth to provide the administrator, driver, and aide with sufficient information to develop and administer a quality program.

FEDERAL LAW

A. Public Law 94-142, Subpart L.A. 121a.

1. General: Each State educational agency shall establish and maintain a policy and procedure to assure (1) that to the maximum extent appropriate, [disabled] children, including children in public or private institutions or other care facilities, are educated with children who are not [disabled], and (2) that special classes, separate schools, or other removal of [disabled] children from the regular educational environment occurs only when the nature of severity of the [disability] is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily. . .

2. While re-authorization of the Act in 1990 shifted its provisions into Part B of the Individual with Disabilities Education Act (IDEA), the substantive provisions affecting pupil transportation did not change.

B. Section 504, Public Law 93-112, Rehabilitation Act of 1973.

1. The Act states, in part: No otherwise qualified [disabled] individual in the United States shall, solely by reason of his [disability], be excluded from participating in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance.

2. The Act requires that the facilities, services, and activities provided to the disabled be comparable with those provided to the non-disabled and that students with disabilities must have an equal opportunity for participation in any non-academic and extracurricular services and activities provided by a school district.

INDIVIDUALIZED EDUCATION PROGRAM (IEP) AND STUDENT EDUCATION PLAN (SEP)

A. Determination of transportation needs will be noted during students' I.E.P./S.E.P. processing. Special needs of students, such as specialized equipment or specialized handling, will be noted at the time of the I.E.P./S.E.P. The district transportation supervisor will route buses for the students' transportation according to efficiency and the individual characteristics of disabilities. Students who are capable will be expected to meet the school bus at regular bus stops. Home pick-ups and deliveries will be made only for those students with disabilities that prevent them from using such designated stops.

B. Disabled students will be transported on regular school buses and approved school bus runs, with the following exceptions:

1. Districts may be paid for transporting trainable mentally disabled, severely motor disabled, and severely multiple disabled students to approved special programs. (These students will be diagnosed,

classified, and placed in accordance with the State Rules and Regulations for the disabled. Several alternative funding methods can be used if it is shown that they are the most reasonable and efficient way to transport eligible pupils. These are (a) commercial (bus passes, charters, taxies), (b) student allowances (parents drive children to school), and (c) subsistence (room and board).

2. Deaf and Blind: Transportation will be provided by the Utah Schools for the Deaf and the Blind for pupils who are attending extension classes operated by that institution. Exceptions shall be approved by the Utah State Office of Education.

3. Districts may seek special approval for reimbursement for transporting other disabled children who cannot be safely transported on regular school bus runs. No costs will be reimbursed unless State approval is given, in writing, before the fact.

4. Age of disabled children. Pupil transportation will be provided by bus, student allowance, or other approved means for disabled children attending school district-sponsored classes for ages five through 21.

GENERAL PRINCIPLES

A. Pupil management encompasses all preparation and action taken to meet each student's needs for comfort and safety while riding to and from school. For the student with disabilities, this means a variety of adjustments to accommodate each individual's needs without compromising the safety of others and the primary role of the driver to drive the bus.

B. Transportation of disabled students is a highly personalized service, requiring a thorough assessment of and allowances for physical, social, emotional, and intellectual capacities.

C. Successful student management depends on careful planning for each student's needs prior to placement and continued monitoring throughout the school year. Good student management techniques avoid narrow, band-aid approaches by assessing needs and anticipating problems.

D. Respect, communication, and cooperation among drivers, parents, guardians, teachers, and other school officials will help to ensure safe, reliable, and comfortable transportation service. It is important to recognize that the driver often spends several hours a day with these students, thereby assuming a significant role in their lives.

E. Transportation goals shall be included in each student's Individualized Education Plan (IEP) and upgraded along with its goals.

CHARACTERISTICS OF STUDENTS WITH DISABILITIES

A. In general, the following behaviors are characteristic, though no one student is likely to manifest all of them.

1. Students with learning disabilities typically have average or higher intellectual ability, but suffer from disorders that prevent them from processing or understanding information, particularly language. They may be disorganized or inefficient in solving problems. They may demonstrate impulsive or extreme emotional behaviors that seem out of proportion to the severity of the problem. Hyperactivity is also common among these students.

2. Emotionally disturbed students may have great difficulty controlling their behavior. Emotional disturbance is characterized by low self-esteem. The student may either withdraw or act out frustrations and insecurities. Seemingly inappropriate types of behavior may be observed. Desirable behavior may lack stability from day to day. There is a tendency for the student to develop physical symptoms or fears that should be discussed with the student's teacher. A limited number of clear, consistent rules will set goals for

the student to facilitate self-regulation of behavior. Avoid angry outbursts and punishment. Never label a student as bad when he or she misbehaves. Simply remind the student of what is expected and why, and reinforce proper behavior. A lack of consistently desirable behavior is usually not willful disobedience but, rather, behavior beyond their control.

3. Mental disability encompasses a range of impairment from mildly (educable) disabled to trainable, to severely or profoundly disabled. Many students may have physical disabilities in addition to mental disabilities. They may be afflicted by disorders involving poor motor coordination, seizures and body tremors. They may have diminished self-care skills. They may require aid in dressing, expressing themselves, and boarding the bus. They may be friendly and affectionate, but they may need frequent reminders of bus rules because they have limited retention. Many disabled students can understand what you tell them (possess receptive language) but cannot speak to you. You should insist that they use every mode of communication of which they are capable to make their needs known to you.

4. Physical disabilities include deafness, blindness, paralysis, lack of head, trunk or back control, or erratic movement. These students may be of average or above-average intelligence, but are frequently behind in social and academic development. Those with orthopedic disabilities often have leg braces, crutches, wheelchairs, or other supportive equipment. These students must be seated and secured comfortably.

5. Communication with students whose disabilities interfere with normal means of expression can pose a major challenge to the driver.

6. Visually impaired students respond best when they are addressed by name, and when the events around them are described carefully. Remember that they cannot see facial expressions or other body language that constitute a large part of communication for others. The visually impaired can develop self-sufficiency if their environment is structured in a stable and predictable way. They can fasten their own seat belts if they can find them on the same seat in the same position each day. They cannot easily recover them if they've fallen behind the seat, or if their seat changes and the seat belt is no longer in a familiar location.

7. Students with hearing impairments use their visual skills to compensate for their hearing loss. Look at them when you talk. Speak clearly and distinctly to help them read your lips. Yelling does not help them understand. Facial expression and body language are very important; show them what you want. The driver may wish to carry a pad and pencil to write down what cannot otherwise be conveyed. Deaf children may find the noise level in their hearing aids uncomfortable and turn them off. A course in sign language is valuable to those drivers who routinely transport deaf children. Deaf students will probably be most content if there are others on the bus with whom they can communicate. Hearing impaired children, along with visually impaired pupils, are not likely to be much different than other children in terms of behavioral problems.

B. Although the behaviors described above are characteristic of certain categories of disabling conditions, it is important to remember that each student is an individual with a distinct personality. No label can completely or adequately describe any student, nor should you use labels. It should be noted that students with disabilities, like students without disabilities, can be expected to behave and misbehave in a normal fashion. The driver of disabled children needs to be more flexible, patient, and creative in the management of these students.

CLASS PLACEMENT

A. Class assignment should include a routine consultation with transportation personnel to avoid bus problems that may later develop into classroom problems.

1. Some students may need to be transported in wheelchairs or specially designed car seats or vests to provide trunk and head support. The type of vehicle required must be ascertained in advance, and

lead time may be needed to construct a device in which to transport the student.

2. Special needs for transportation service may also be indicated on the student's IEP.

3. The last consideration in planning is the mixture of students in the vehicle. It may be desirable to group students by disability. In sparsely-populated areas it may be impossible to do so.

B. After class assignment is determined, the transportation supervisor should research the student's transportation needs.

1. A thorough inventory of the student's needs should be taken by school personnel in cooperation with the transportation director. This should include aspects of the student's personality and disabling condition(s) as they relate to the bus ride. This may determine such matters as seat assignment, order of stops, equipment needed, and techniques for effectively relating to the student. The potential for seizures and other significant medical problems should be documented and available to the driver.

2. Any deviation from normal schedules should be noted. Special care should be exercised to ensure that the student's medication schedule and bus schedule do not conflict.

3. Arrangements should be made for alternate and emergency drop-off points and telephone numbers. Failing to deliver the student to the regular stop or at the expected time may create anxiety in the student and parents, thereby undermining the driver's control of the situation.

4. Arrangements for each student's transportation should be communicated to all involved parties, including parents, guardians, school personnel, drivers, aides, and other students on the bus. Smooth bus service start-up will help make the student's first day of school a positive experience. It will instill confidence in the parents and reflect well on the entire school system.

5. It is advisable that schools receiving disabled students by bus service assign a staff member to meet all arrivals at loading and unloading zones. Students with severe disabilities should not be left unattended outside the school.

DISCIPLINE AND BEHAVIOR CONTROL

A. Safety of passengers and respect for persons and property are needed when disabled children are transported. A student cannot be allowed to behave in any manner that endangers others or causes serious harm en route.

B. Lenience or pity for students because of their disabilities is counter-productive to the development of self-sufficiency. Many students sense this attitude and manipulate it to their advantage. Students must be taught to accept responsibility for their actions. This can usually be accomplished if the following rules are obeyed:

1. Let the students know what is expected of them. Define terms and rules clearly. Enforce the rules fairly, firmly, and consistently.

2. Let the students know exactly what the consequences of their behavior will be. Always follow through on the disciplinary action you outline or the students will quickly learn that your authority is not to be taken seriously.

3. Demonstrate what you want them to do, using as many modes as possible. For example, don't just tell them to fasten their restraining devices, demonstrate how to do it.

4. Accentuate the positive. Continually telling the students "Don't do this," and "Don't do that"

leaves them wondering what they can do. Long bus rides can be a tiring and boring experience. Suggest methods of acceptable behavior.

C. Behavior modification is a technique that requires students to behave in an appropriate way before they are given some reward. This increases the likelihood that they will behave as desired. To be effective, you must take into consideration the ages of the students, the nature of the reward, and provide a clear definition of acceptable behavior.

1. It is generally a good policy to develop a simple reward system for acceptable behavior. As a general rule, liberal amounts of praise should be a part of the system.

2. The driver can develop a chart to keep track of those who have behaved well. Rewards may be given to those with satisfactory ratings. A smiling face or a gold star on the chart, a preferred seat or other tangible rewards are examples. Such practices should be acceptable to parents, guardians, and teachers.

3. Some disruptive students respond well when given responsibility. Leading others in singing or in a quiet game may channel excess energy into a more constructive activity that can be pursued safely on the bus ride.

D. Other techniques of behavior management include rearranging seating and isolating disruptive students.

1. Seating arrangements on the bus can be important in managing disabled students. A good driver will learn to know the students and seat those who get along near each other.

- (a). The seat closest to the front of the vehicle may be used either as a reward or as punishment, depending on the attitude of the students. Younger students often perceive sitting near the driver as a privilege, and this may be granted as a reward for good behavior. Older students are more likely to view a front seat as undesirable, and it may then be used to isolate a disruptive student.

- (b). An insightful choice of seat partners can help the driver manage students. For instance, a young hyperactive child may be seated with an older, well-behaved child. The older student is made to feel important by looking after the young charge, and the younger student may look up to the older one and behave better to make an impression. A more advanced student may be able to sit with one who is easily distracted and entertain the other by talking or looking at a book.

- (c). Very young or fragile students should be seated away from older, larger students who might harm them if they become angry or frustrated.

2. In cases of serious misbehavior, temporary suspension of bus privileges may be in order. This should only be done after consultation with parent or guardian and teacher in order to prevent a student from being left home unsupervised or spending the day alone on the streets. Suspension from the bus is usually most appropriate when the safety of other students is threatened by the student in question.

3. Most students respond best to rules if they have a voice in the development of them. The driver may tell students that the bus is their bus, thereby encouraging pride in making it a clean, safe and enjoyable place. For those students who are able, the driver may have them suggest rules for the bus and the means of enforcing them. Often, students will develop more strict regulations than the driver.

4. Students who commit serious breeches of the rules and do not respond to any of the above methods may require referral to a school counselor or psychologist for development of a more personalized behavior-management scheme.

5. Behavior management methods will be most effective if developed after consultation with parents, guardians, and teachers. Students can be confused and frustrated if they are allowed to behave one way on the bus and another in the classroom. Cooperation of all concerned parties is the ideal way to achieve a safe bus environment.

6. Some behavior results from severe emotional, mental, or physical disabilities and cannot be adequately controlled by the techniques described herein. Such behavior is readily diagnosed by a qualified member of the special education staff. It is recommended that when the behavior is identified, the following actions be taken:

(a). Older and higher-functioning students can be rerouted and added as passengers on a bus to assist younger and lower-functioning students. A buddy system can be developed with reinforcements for cooperative behavior. The most successful systems are those recognized and supported by the school.

(b). Hyperactive children can be retained in their seats by use of appropriate restraining devices when approved in advance by the IEP team.

(c). The transportation supervisor should determine the feasibility of assigning an aide to the bus. The aide can monitor the students and engage them in quiet activity during the bus ride.

(d). The bus may be modified to control behavior resulting from students responding to outside influences. Windows may be tinted to reduce light and heat. The seating system can be compartmentalized. All equipment modifications must comply with state and federal regulations.

(e). The driver of the bus may improve his or her skills for controlling pupil behavior by periodically visiting the students in their classrooms.

7. The driver may observe teachers to learn how to diagnose the needs of students and the responses and techniques they use in managing students. Uniformity in behavior-management techniques between classroom and bus can be developed.

8. Visits by the driver to the classroom strengthens the association between drivers and teachers. The driver's presence and the bus ride may be seen as an extension of the classroom where quiet behavior is required.

MEDICAL CONCERNS

A. Students with disabilities are often more susceptible to illness than others. Therefore, they may miss school more often. They are often on medication for their disabilities. Normally, a driver should never administer this medication. It is strongly recommended that drivers of disabled students enroll in a first-aid course in preparation for medical emergencies that may arise.

B. A change in dosage of medication can dramatically alter a student's behavior. Sudden personality changes should be reported to the parent, guardian, and teacher at the earliest possible time. It is recommended that reports be written.

C. Medical problems may arise on the bus for which a driver should be prepared.

(1). Some children with disabilities are subject to convulsive disorders and seizures. These can vary in intensity and length. A petit mal seizure, lasting a few seconds, is often not noticeable. A grand mal seizure, involving arm thrashing and body rigidity, is of longer duration. Normally, seizures are self-limiting. The driver's role is to see that the student does not harm himself or herself and rests comfortably afterward.

Nothing should be placed in the student's mouth, nor should limbs be restrained in any manner. Extended seizures constitute a medical emergency and medical help should be summoned.

(2). Some students may have respiratory difficulties and drool. They may choke on their own saliva or foreign objects. The method of dealing with these problems should be discussed with the parent, guardian, teacher, and with medical personnel. Some students may become nauseated during the ride. It is for this reason that the body fluid clean-up kit is a required component on all school buses or other vehicles that transport students to and from school.

D. Most medical incidents on the bus ride, while requiring special attention of the driver or aide, will not necessitate summoning professional assistance. Extended seizures and other serious medical matters may require either diverting the bus to a medical facility or summoning an ambulance. In any event, all medically-related incidents should be reported to the school and parents or guardians at the earliest possible moment. It is recommended that a report be written.

STUDENT MANAGEMENT DURING EMERGENCIES

A. It may be useful to educate those students who are capable of comprehending and retaining information about emergency measures. It is possible that the driver may be incapacitated in an accident, requiring a student to take charge.

B. In emergencies where the driver is not injured, it is important to assure students that the situation is under control.

C. The most important preparation for student management during emergencies is planning.

1. Assess the abilities and disabilities of each student to determine what the needs of each one might be in an emergency.

2. Plan how to evacuate each student if it becomes necessary. Determine what special attention might be needed after evacuation (e.g., providing reassurance to normally tense and insecure students). The appearance of confidence on the part of the driver will help calm the students.

3. Develop and maintain a clearly visible seating chart that identifies the special needs of student passengers in the event of an emergency evacuation. This chart is useful to emergency service personnel who may respond, especially if the driver is incapacitated.

D. Evacuation drills involving the driver and students shall be conducted twice each year. Disabled students shall practice evacuation procedures within their capabilities.

E. Wheelchairs:

1. Brakes and a restraining belt should be installed on each wheelchair and maintained by the owner. Electric-powered wheelchairs should have independent braking systems that can be locked in gear while the bus is in motion.

2. Batteries shall contain non-liquid electrolyte.

SUMMARY OF SUCCESSFUL PUPIL MANAGEMENT

A. Inventory the abilities and disabling conditions of each student. Gear the rules of the bus to each bus load of pupils.

B. Continuity and consistency of expectations by those in authority at home, in the classroom, and on the bus will do much to aid the student's social development, independence, self-esteem, and respect for the rights of others.

C. The school bus driver is an important participant in a disabled child's educational experience. The student should be familiar with the programs, children, and staff. Drivers should be assigned to routes on as permanent a basis as possible.

POLICY DEVELOPMENT

Policy development should include at least (a) establishing uniform policies for pupils, parents, drivers, and aides, (b) ensuring conformity to local, state, and federal law, (c) securing school board approval and adoption, and (d) distributing policies to all affected participants in the transportation system.

A. Student Policies. Develop written policies to facilitate a safer, more enjoyable ride for students. Accentuate the positive.

1. Post in the bus.
2. Include in driver and student handbooks.

B. Parent or Guardian Policies. Develop written policies for facilitating a safe, effective transportation system. Include:

1. Pickup and delivery instructions.
2. Maximum times in transit.
3. Types of approved orthopedic devices.
4. Emergency procedures.
5. Delivery of written policies to parent or guardian prior to service commitment.

C. Driver Policies. Confidential data to have available in the vehicle for driver's use:

1. Student's name, address, and telephone number.
2. Nature of pupil's disability.
3. Emergency health care information.
4. Name and telephone number of student's physician, parent, guardian, or other responsible person.
5. Provisions for student's welfare if student is not met at the designated bus stop.
6. Locations of all emergency facilities along the route or within the general area.

D. Aide Policies.

1. Aides shall comply with employment and physical examination requirements.

2. An ongoing aide-training program should be implemented for new aides. Areas covered should include:

- (a). Student behavior management.
- (b). First-aid training.
- (c). School bus evacuation/emergency training.
- (d). Use of special equipment required for transporting the disabled.
- (e). The aide/driver relationship. (The aide is responsible to the school bus driver.)

E. Planning Policy.

- 1. Assess cooperative transportation systems with neighboring school districts.
- 2. Determine location and destination of all students to be transported.
- 3. Obtain information pertaining to individual needs for specialized equipment such as safety harnesses, seat belts, wheelchairs, gurnies, infant seats, etc.
- 4. Plot the safest, most efficient route to avoid high-traffic and high-accident areas.
- 5. Provide the drivers, the school, and the transportation office with the following information:
 - (a). List of students on the bus(es).
 - (b). Appropriate times for pick up and return of students.
 - (c). Map indicating routing of the bus and location of students.
 - (d). An identification form for each student with information such as student's name, parent or guardian name, address, telephone number, location and description of home, nature of the student's disabilities, medication, photograph, etc.
- 6. Provide parents or guardians of all students with the driver's name, bus number, pick up and delivery times, school hours, school calendar, etc.
- 7. Require at least one dry run of all routes before start up. Instruct the driver to meet parents during dry run.

F. Routing and Scheduling Policy.

- 1. Effective routing provides for economical and efficient operations with maximum student safety.
- 2. Develop routing guidelines for maximum student ride times, size and type of vehicles to be used, acceptable pick up locations, acceptable comingling of disabilities, acceptable orthopedic devices to transport, acceptable medical equipment to transport, etc.
- 3. Consider computer scheduling systems for cost effectiveness and minimizing routing problems.

G. Communication Policy.

1. Determine the local district's communication needs for transportation.
2. If two-way radio communication is needed, assess the geographical area to be covered and its topographical features.
3. Select an appropriate radio system. Avoid citizen-band radios.
4. Train drivers, aides, and dispatchers in the proper use of the system in both emergency and non-emergency situations. Minimize air time to maximize its usefulness.
5. To avoid time-consuming relay of information, routing data and confidential pupil information should be kept at the base station and in the bus.

INFANTS, TODDLERS, AND PRESCHOOLERS

DEFINITIONS

Newborn is a child from birth to one month.

Infant is a child from one month to one year.

Toddler is a child from one year to three years.

Preschooler is a child from three years to five years.

Note: Individual programs may have variations in how these four terms are used. State laws, policies and, guidelines may contain variations in the age range used to define the terms infant, toddler and preschooler. If not specified, newborn will be included in the infant category.

CHARACTERISTICS OF INFANTS, TODDLERS, AND PRESCHOOLERS

A. Transporters must recognize that infants, toddlers, and preschool children, as passengers on school buses, greatly vary in their individual needs and development. These children range in age from one month to age five, and represent a diverse group. Their individual development and functional level may vary greatly with respect to cognitive development, physical development, (including hearing and vision), communication development, social or emotional development, and adaptive development. These children may be identified as children with or without developmental delays, disabilities, or special needs. One characteristic of this group is its need for supervision based upon their chronological age, physical and mental development, and independent functional level. The degree of supervision required by these children while they are on a school bus should be determined by each child's level of functioning.

B. Infants and toddlers with disabilities under Part H of IDEA includes children birth through age two who require early-intervention services because they are experiencing developmental delays in one or more of the following areas: (1) cognitive development, (2) physical development (including vision and hearing), (3) communication development, social or emotional development, and adaptive development. This population includes children who have a diagnosed physical or mental condition that has a high probability of resulting in developmental delays. Individual states, at their discretion, may include children from birth through age two who are at risk of having substantial developmental delays under their state definition.

C. Services for preschool children with disabilities are included under Part B of the Individuals with Disabilities Education Act (IDEA). The Preschool Grant Program is referred to as Section 619 of Part B, and includes those children having mental retardation, hearing impairments (including deafness), speech or language impairments, visual impairments (including blindness), serious emotional disturbance, orthopedic impairments, autism, traumatic brain injury, other health impairments, specific learning disabilities, deaf-blindness, or multiple disabilities, and who because of those impairments need special education and related services. The term "children with disabilities" for children three through five may, at a state's discretion, include children who experience developmental delays as defined by the state.

LAWS RELATING TO TRANSPORTING INFANTS, TODDLERS, AND PRESCHOOL CHILDREN

A. There are a number of laws that impact decision-making and the transportation of infants, toddlers, and preschool children. They include:

1. Public Law (PL) 93-112, The Rehabilitation Act of 1973 (§ 504).

This law constituted the first national declaration of the rights of individuals with handicaps. Section 504 prohibits the discrimination against individuals with handicaps by any recipient of federal funding. It includes young children with a handicap who would otherwise be qualified to participate in and benefit from programs or other activities receiving federal financial assistance.

2. PL 94-142, The Education for All Handicapped Children Act (EHA) of 1975

This law guaranteed that a “free appropriate public education,” including special education and related services, be provided to all disabled children. It detailed steps that must be taken in identifying and evaluating children with disabilities, provided that students must be educated with non-handicapped students to the maximum extent appropriate in the LRE, and established an elaborate system of procedural safeguards to ensure parental participation in the development and approval of the IEP. Transportation is one of the related services defined in the regulations. It is an important related service because it provides access to all other special education and related services.

3. PL 97-35, The Head Start Act (§ 635).

The Head Start program was initiated in 1965 as a comprehensive child development program to serve primarily low-income children. Predominately, the ages served are from three to compulsory school attendance. However, this program has been expanded to provide services that include infants, toddlers and children with disabilities. The regulations require that a minimum of 10 percent enrollment be available to children with disabilities. While Head Start is intended to serve children that are from low-income families, the regulations permit up to 10 percent of the children served be from families that are not low-income. To assist young children in reaching their full potential, Head Start provides a comprehensive program that includes health, nutritional, educational, social and other services. One of the requirements of Head Start is the direct participation of parents of enrolled children.

4. PL 99-372, The Handicapped Children's Protection Act of 1986.

This law amended the Education for all Handicapped Children Act of 1975 to authorize the award of “reasonable attorneys’ fees” to parents who prevail in due process hearings and judicial proceedings under Part B of the Education for all Handicapped Children Act of 1975. This is extremely important because disputes that arise about the related service transportation under Part B can result in costly recovery of attorney fees awarded by the courts to parents.

5. PL 99-457, Part H, The Education for All Handicapped Children Act Amendments of 1986.

Within a decade of the passage of the EHA, Part H was passed to assist states in establishing statewide, comprehensive early-intervention services for children with handicaps from birth through two years old and their families. Based on the recognition that early intervention enhances the development of handicapped children, this law provides states with financial incentives. Borrowing from IDEA, this law requires that children receive early-intervention services as specified in an Individualized Family Services Plan (IFSP). As used in this part “developmental delay” is defined by the states. Each state must designate the criteria used to determine eligibility for services. Therefore, the types of children served under Part H programs nationwide are, in part, influenced by a state’s definition of this population. Transportation is considered an early-intervention service and is defined in the Part H regulations.

6. PL 101-336, The Americans with Disabilities ACT of 1990.

The Americans with Disabilities Act (ADA) is a comprehensive civil rights law that enforces the non-discrimination of persons with disabilities. It does not change or diminish existing provisions of federal law protecting individuals with disabilities under Section 504 or IDEA. The ADA creates a higher standard of

non-discrimination than does Section 504 in that it applies regardless of whether federal funding is received. This law applies to all ages including young children with disabilities. As stated in the statute, the purposes of the ADA are:

(a). To provide a clear and comprehensive national mandate for the elimination of discrimination against individuals with disabilities.

(b). To provide clear, strong, consistent, and enforceable standards addressing discrimination against individuals with disabilities.

(c). To ensure that the federal government plays a central role in enforcing the standards established in this Act on behalf of individuals with disabilities;

(d). To invoke the sweep of congressional authority, including the power to enforce the Fourteenth Amendment and to regulate commerce, in order to address the major areas of discrimination faced day-to-day by people with disabilities.

NOTE: The ADA regulation specifically exempts school buses from some of its requirements, but does not exempt access to transportation services for infants, toddlers, and preschool children.

7. Public Law 101-476, Part B, Individuals with Disabilities Education Act of 1990.

This act renamed the Education for all Handicapped Act of 1975 the Individuals with Disabilities Education Act (IDEA). All previous references to “handicapped children” were changed to “children with disabilities.” Transportation is defined in the regulations as a related service under the Act. In addition, two new categories of disabilities were added: “autism” and “traumatic brain injury.” The law also broadened the definition of the terms “assistive technology device” and “assistive technology service.” The addition of assistive technology service is raising questions regarding responsibility for purchase, lease, selection, adaptation, maintenance, repair, or replacement of equipment under the definition of “assistive technology device.” These terms are applicable to the provision of the related service transportation.

8. Public Law 102-119, The Individuals with Disabilities Education Act Amendments of 1991.

These amendments re-authorized P.L. 99-457, the Education of the Handicapped Act Amendments of 1986, as the Individuals with Disabilities Education Act Amendments of 1991. This re-authorization requires participating states to coordinate services and funding sources for the provision of early intervention services to infants and toddlers from birth through two years old. The early-intervention service transportation is defined in the regulations.

B. Transportation Definitions Affecting Services for Infants, Toddlers, and Preschool Children under the Individuals with Disabilities Education Act (IDEA).

1. The definition of transportation under the Individual with Disabilities Education Act is found in both P.L. 101-476 (Part B) and P.L. 102-119 (Part H). These definitions differ significantly in their provisions because of the ages covered under each of the statutes.

(a). P.L. 101-476 (formerly P.L. 94-142) identifies transportation as a related service (Part B) under the IDEA regulations 300.16 and defines “transportation” as including travel to and from school and between schools, travel in and around school buildings, and specialized equipment (such as special or adapted buses, lifts, and ramps), if required to provide special transportation for a child with a disability.

(b). P.L. 102-119 (formerly P.L. 99-457) identifies transportation and related costs as an early-intervention service. IDEA regulations 303-12 (d)(15) define them as the costs of travel (e.g., mileage, or

travel by taxi, common carrier, or other means) and other costs (e.g., tolls and parking expenses) that are necessary to enable a eligible child under this part and their family to receive early intervention services.

EQUIPMENT

Great strides have been made in the type of equipment used to assist infants, toddlers, and preschool children with special needs. These children present new challenges to providers of transportation. The school bus vehicle is significant because it is the mechanism for transporting young children who have special needs to and from support and developmental programs. To assure child passenger safety on the school bus, transportation personnel will need training to work with infants, toddlers, and preschool children who use a variety of equipment.

Infants, toddlers, and preschool children with special needs present a challenge for transportation personnel as conventional school bus seats do not accommodate these children's body sizes. This population includes children who sit upright but require a safety belt or vest to provide upper body support and to keep the child from moving off the bus seat.

The following standards are applicable to this section:

FMVSS 208 FMVSS 209 FMVSS 210 FMVSS 213 FMVSS 222

CHILD SECUREMENT SYSTEMS

A. All child securement systems used on the school bus must meet the following specifications:

1. Meet requirements for FMVSS 213.
2. Be used and installed according to manufacturer's instructions.
3. Not be under a recall which recommends non-use of the seat.
4. Have all parts intact and in working order.
5. Be secured to vehicle seat with a safety belt that meets FMVSS 209.
6. Safety belts should only be installed only on bus seats that meet FMVSS 210.

Note: The following devices are unacceptable for seating during transport on the school bus vehicle unless proven to meet applicable specifications and performance requirements for a crash-worthy mobile seating device: Infant feeder seats, tumble form position seats, strollers, home booster seats, foam cushion accessories placed behind the head, shoulders or back of child placed in a car seat.

B. Child securement systems used on school buses must be appropriate for the individual child and must be used correctly. All of the restraint systems used for transportation must be secured to the bus seat in the manner prescribed and approved by both the school bus manufacturer and the manufacturer of the child restraint system.

1. The safety belt must be routed through the appropriate belt path specified by the manufacturer's instructions to secure car seat to bus seat.
2. Decisions regarding positional support should be made by a qualified professional.
3. Installer of car seat must apply weight to child restraint while pulling firmly on safety belt to secure.

4. Safety belt must be in the locked position when anchoring the car seat and should be checked by pulling firmly on the car seat in a forward and side to side motion. Significant movement of the car seat in any direction will warrant further modifications as approved by the manufacturer of the car seat.

INFANT-ONLY CAR SEATS

- A. Infant-only car seats must be oriented rearward for a child up to 20 pounds and as close as possible to age one year old.
- B. The infant's head must be completely inside the safety seat.
- C. Decisions regarding positional support should be made by a qualified professional.
- D. Retainer clip should be positioned mid-chest or at armpit level on a child. Do not remove the retainer clip as it keeps the harness straps on the infant's shoulders and prevents ejection from the seat. The harness should fit snugly.
- E. Harness straps must lie flat, snugly against the infant's body, as specified.

CAR BEDS

Note: Car beds for infants up to 20 pounds allow the infant to lie flat. The use of a car bed should only be after consultation with a physician and approved by qualified personnel at an IFSP team meeting.

- A. Lateral support can be added at both sides of the infant. Avoid placing padding around the infant's head to prevent airway blockage.
- B. Beds must be secured to the bus seat with the seat belt passing through both slide loops.
- C. Adjust the harness system to a snug fit as specified by the manufacturer. Harness straps should lie flat, not twisted.

CONVERTIBLE CHILD SAFETY SEATS: INFANT POSITION

- A. A convertible seat faces backward for an infant less than twenty pounds in weight or 26 inches in height. (Rearward facing on the seat)
- B. Harness straps should be in the lowest slots.
- C. Make sure the crotch strap is in the proper position for the infant.
- D. Retainer clip should be positioned mid-chest or armpit level.
- E. Do not use tray shield or tray shield seat for an infant if the shield contacts the infant's face and neck or if the child has a tracheostomy.
- F. Observe the location of a gastronomy-tube or tracheostomy and check the harness straps to make certain the straps are not irritating the gastronomy-tube or tracheostomy area.
- G. Decisions regarding positional support should be made by a qualified professional.

CONVERTIBLE CHILD SAFETY SEATS: TODDLER POSITION

A. A convertible seat facing forward should be used for a toddler between 20 and 40 pounds in weight and 26-40 inches in height.

B. Harness straps should be in the upper slots.

C. Check to determine if the crotch strap is in the proper position for the toddler.

D. Retainer clip should be positioned mid-chest or armpit level.

E. Do not use a tray shield with a child who has a tracheostomy or glasses.

F. Observe the location of a gastronomy tube or tracheostomy and the straps to ensure the straps are not irritating the gastronomy tube or tracheostomy.

Note: The child's hips should be positioned against the back padding of a car seat.

SPECIALIZED POSITIONING SEATS

A. Used only when a child does not fit in a standard child safety seat or has a condition warranting more support or added features.

B. May require additional tether strap or locking clip to secure on bus seat.

C. The safety belt must be routed through the appropriate belt path specified by the manufacturer's instructions to secure car seat to bus seat.

D. Decisions regarding position support should be made by a qualified professional.

E. If a retainer clip is used, it should be positioned at mid-chest or armpit level.

F. Observe the location of a gastronomy tube or tracheostomy and check the harness to make sure the straps are not irritating the gastronomy tube or tracheostomy.

BOOSTER SAFETY SEATS

A. A booster seat should be used if children are between 40 and 60 pounds and have outgrown the convertible seat.

B. If a small booster seat is used, a shield must be used in conjunction with the lap belt.

C. Follow manufacturer's directions for proper position of seat.

D. When mid-point of the child's head is above the back of the bus seat, do not use a booster seat. Position the child directly on the bus seat.

E. The use of a booster seat for a special-needs student should be specified on the IFSP or IEP. Qualified personnel should be part of the decision making.

SAFETY VESTS

- A. Vest selection should be appropriate for the height, weight, and waist of the child.
- B. The decision to use a vest should be made by an IFSP or IEP team that includes qualified personnel and the child's parents.
- C. The use of a safety vest should be noted on the IFSP or IEP.
- D. Vests should be anchored as specified by the manufacturer.
- E. The decision to use a vest for a wheelchair must be made by an IFSP or IEP team. The team should include qualified professionals and the parents and should be noted on the IFSP or IEP.
- F. Observe the location of a g-tube or tracheostomy to be sure the straps do not irritate either area.
- G. Metal hardware near the head of the child should not make contact with placement of the child's shunt.
- H. Children who are found to slide under or "submarine" vests/safety belts should be securely fitted with a crotch strap supplied by the manufacturer.

HEAD START PERFORMANCE STANDARDS

Head Start Program Performance Standards on Services for Children with Disabilities (45-CFR 1308) set forth the requirements for providing special services for children aged 3 to 5 with disabilities enrolled in Head Start Programs. Transportation is addressed in Subpart B-Disabilities Service Plan (h)(6) and (o)(5). The related service transportation is defined as follows:

A. "Transportation is provided for children with disabilities to and from the program and to special clinics or other service providers when the services cannot be provided on-site. Transportation includes adapted buses equipped to accommodate wheelchairs or other such devices if required." § 1308.4 (h)(6)

B. "Transportation is a related service to be provided to children with disabilities. When transportation to the program site and to special services can be accessed from other agencies, it should be used. When it is not available, program funds are to be used to provide it. Special buses or use of taxis are allowable expenses if there are no alternatives available and they are necessary to enable a child to be served." § 1308.4 (o)(5)

SCHOOL BUS OPERATIONS: APPENDIX 1

HIGHWAY SAFETY PROGRAM STANDARD NO. 17

Pupil Transportation Safety

I. SCOPE. The standard establishes minimum requirements for a State highway safety program for pupil transportation safety; including the identification, operation, and maintenance of school buses; training of personnel; and administration.

II. PURPOSE. The purpose of this standard is to reduce, to the greatest extent possible, the danger of death or injury to school children while they are being transported to and from school.

III. DEFINITIONS. "Bus" is a motor vehicle designed to carry more than 10 passengers. "School bus" is a bus that is used for purposes that include transporting students to and from school or related events on a regular basis, but does not include a transit bus or a school-chartered bus.

IV. REQUIREMENTS. Each state, in cooperation with its school districts and its political subdivisions, shall have a comprehensive pupil transportation safety program to assure that school vehicles are operated and maintained so as to achieve the highest possible level of safety.

A. ADMINISTRATION

(1). There shall be a single state agency having primary administrative responsibility for pupil transportation, and employing at least one full-time professional to carry out its responsibilities for pupil transportation.

(2). The responsible state agency shall develop an operating system for collecting and reporting information needed to improve the safety of school vehicle operations, in accordance with Safety Program Standard No. 10, "Traffic Records," # 204.4.

B. IDENTIFICATION AND EQUIPMENT OF SCHOOL VEHICLES. Each state shall establish and maintain compliance with the following requirements for identification and equipment of school vehicles.

(1). School Buses Shall:

(a). Be identified with the words, "School Bus," printed in letters not less than eight inches high, located between the warning signal lamps as high as possible without impairing visibility of the lettering from both front and rear, and have no other lettering on the front or rear of the vehicle.

(b). Be painted National School Bus Yellow, in accordance with the colorimetric specification of Federal Standard No. 595a, Color 13432, except that the hood shall be either that color or lusterless black, matching Federal Standard No. 595a, Color 37038, and the roof may be white.

(c). Have bumpers of glossy black, matching Federal Standard No. 595a, Color 17038; unless, for increased night visibility, they are covered with a retro-reflective material.

(d). Be equipped with a system of signal lamps that conforms to the school bus requirements of Federal Motor Vehicle Safety Standard 108, 49 CFR 571.21.

(e). Have a system of mirrors that will give the seated driver a view of the roadway to each side of the bus, and of the area immediately in front of the front bumper.

(2). Any school vehicle meeting the identification requirements of 1.a-d above that is

permanently converted for use wholly for purposes other than transporting pupils to or from school shall be painted a color other than National School Bus Yellow, and shall have the stop arms and equipment required by section IV.B.1.d, removed.

(3). School buses being operated on a public highway and transporting primarily passengers other than school pupils shall have the words, "School Bus," covered, removed, or otherwise concealed, and the stop arms and equipment required by section IV.B.1.d shall not be operable through the usual controls.

(4). Multipurpose Passenger Vehicles (MPVs) should be of a color other than National School Bus Glossy Yellow, have none of the equipment specified in IV.B.1.d, and not have the words, "School Bus," in any location on the exterior of the vehicle, or in any interior location visible to a motorist.

C. OPERATION. Each state shall establish and maintain compliance with the following requirements for operating school vehicles:

(1). Personnel.

(a). Each state shall develop a plan for selecting, training, and supervising persons whose primary duties involve transporting school pupils, in order to assure that such persons will attain a high degree of competence in, and knowledge of, their duties.

(b). Every person who drives a Type A, B, C, or D school bus shall, as a minimum:

- * Have a valid state driver's license to operate such a vehicle(s);
- * Meet all special physical, mental, and moral requirements established by the state agency having primary responsibility for pupil transportation; and
- * Be qualified as a driver under the Motor Carrier Safety Regulations of the Department of Transportation, 49 CFR 391, if his or her employer is subject to those regulations.

(2). Pupil Instruction. At least twice during each school year, each pupil who is transported in a vehicle shall be instructed in safe riding practices, and participate in emergency evacuation drills.

(3). Vehicle Operation.

(a). Each state shall develop plans for minimizing highway use hazards to school vehicle occupants, other highway users, pedestrians, and property, including but not limited to:

- * Careful planning and annual review of routes for safety hazards;
- * Planning routes to assure maximum use of buses, and to avoid standees;
- * Providing loading and unloading zones off the main traveled part of highways, wherever it is practicable;
- * Establishing restricted loading and unloading areas for school buses at or near schools;
- * Requiring the driver of a vehicle meeting or overtaking a school bus that is stopped on a highway to take on or discharge pupils, and on which the red warning signals specified in IV.B.1.d. are in operation, to stop his vehicle before it reaches the school bus and not proceed until the warning signals are deactivated; and

* Prohibiting, by legislation or regulation, the operation of any vehicle displaying the words, "School Bus," unless it meets the equipment and identification requirements of this standard.

(b). Use of flashing warning signal lamps while loading or unloading pupils shall be at the option of the state. Use of red warning signal lamps for any other purpose, and at any time other than when the school vehicle is stopped to load or discharge passengers, shall be prohibited.

(c). Stop arms shall be operated only in conjunction with red signal lamps.

(4). Seating.

(a). Seating shall be provided that will permit each occupant to sit in a seat in a plain view lateral location, intended by the manufacturers to provide seating accommodation for a person at least as large as a fifth percentile adult female, as defined in 49 CFR 571.3.

(b). Bus routing and seating plans shall be coordinated so as to eliminate standees when a school vehicle is in motion.

(c). There shall be no auxiliary seating accommodations such as temporary or folding jump seats in any school vehicles.

(d). Drivers of school buses equipped with lap belts shall be required to wear them whenever the vehicle is in motion.

(e). Passengers in MPVs equipped with lap belts shall be required to wear them whenever the vehicle is in motion.

D. VEHICLE MAINTENANCE. Each state shall establish and maintain compliance with the following requirements for vehicle maintenance:

(1). School vehicles shall be maintained in safe operating conditions through a systematic preventive maintenance program.

(2). All school vehicles shall be inspected at least semiannually, in accordance with Highway Safety Program Manual Vol. 1, published by the Department of Transportation, January, 1969. School vehicles subject to the Motor Carrier Safety Regulations of the Federal Highway Administration shall be inspected and maintained in accordance with those regulations (49 CFR 393 and 396).

(3). School bus drivers shall be required to perform daily pre-trip inspections of their vehicles, and to report promptly and in writing any defects or deficiencies discovered that may affect the safety of the vehicle's operation or result in its mechanical breakdown. Pre-trip inspection and condition reports for school buses subject to the Motor Carrier Safety Regulations of the Federal Highway Administration shall be performed in accordance with those regulations (49 CFR 392.7, 392.8, and 396.7.)

E. PROGRAM EVALUATION. The pupil transportation safety program shall be evaluated at least annually by the state agency having primary administrative responsibility for pupil transportation. The National Highway Traffic Safety Administration shall be furnished a summary of each evaluation.

SCHOOL BUS OPERATIONS: APPENDIX 2

POLICIES AND PROCEDURES FOR PUPIL MANAGEMENT

School districts should adopt formal, written policies for pupil management on the school bus. At minimum, the policies should cover the following topics.

- A. The bus driver's authority over, and responsibility for, all passengers while in transit.
- B. The pupil's right to due process when disciplinary action is taken.
- C. A step-by-step procedure for resolving problems when the driver needs assistance.
- D. The conditions under which a pupil might be temporarily or permanently suspended from the bus riding privilege.
- E. Procedures for handling emergencies.
- F. Use of bus monitor or driver aides.
- G. Requirements and responsibility for school bus passenger and pedestrian safety instruction.
- H. Parents' or guardians' responsibility for damage caused by their children to the bus or its equipment.

SCHOOL BUS OPERATIONS: APPENDIX 3

PUPIL RULES

School districts should establish clear rules for pupil behavior, covering all aspects of the busing experience such as behavior at bus stops, during boarding and leaving the bus, and while en route. The following rules are provided as a guideline.

- A. Pupils shall arrive at the bus stop before the bus arrives.
- B. Pupils shall wait in a safe place, clear of traffic and away from where the bus stops.
- C. Pupils shall wait in an orderly line and avoid horseplay.
- D. Pupils shall cross the road or street in front of the bus only after the bus has come to a complete stop and upon direction of the driver.
- E. Pupils shall go directly to an available or assigned seat when entering the bus.
- F. Pupils shall remain seated and keep aisles and exits clear.
- G. Pupils shall observe classroom conduct and obey the driver promptly and respectfully.
- H. Pupils shall refrain from throwing or passing objects on, from, or into buses.
- I. Pupils are permitted to carry only objects that can be held on one's lap.
- J. Pupils shall refrain from the use of profane language, tobacco, alcohol, drugs, or any other illegal controlled substance on the bus.
- K. Pupils shall refrain from eating and drinking on the bus.
- L. Pupils shall not carry hazardous materials, nuisance items, and animals onto the bus.
- M. Pupils shall respect the rights and safety of others.
- N. Pupils shall refrain from leaving or boarding the bus at locations other than the assigned stops at home or school.
- O. Pupils shall refrain from extending head, arms, or objects out of the bus windows.
- P. Pupils shall refrain from hitching rides via the rear bumper or other parts of the bus.

SCHOOL BUS OPERATIONS: APPENDIX 4

PUPIL INSTRUCTION

Since most pupils ride buses to and from school or on activity trips, it is essential that all students be taught safe riding and pedestrian practices. Instructional programs appropriate for each grade level and for the needs of each group of youngsters should be developed. Pupils may not need complete information if they are eligible only for activity trips. This instruction should be provided as early as practical in the school year and should include the following.

- A. Safe walking practices to and from the bus stops.
- B. Wearing of light-colored or reflective clothing when going to and from the bus stop in darkness.
- C. How and where to wait safely for the bus.
- D. What to do if the bus is late or does not arrive.
- E. How to enter and leave the bus.
- F. Safe riding procedures.
- G. Safe highway crossing before boarding or leaving the bus.
- H. Procedures to follow in emergency situations and evacuations.
- I. Respect for the rights and privileges of others.

SCHOOL BUS OPERATIONS: APPENDIX 5

INSTRUCTIONS FOR CONDUCTING EMERGENCY EXIT DRILLS

Due to the increased number of pupils being transported and the ever-increasing number of accidents on the highway, there is an urgent need to instruct pupils on how to properly vacate a school bus in case of emergency. It is possible for pupils to block the emergency door if all are trying to get out at the same time. There is also danger when pupils jump from the rear emergency door exit. To avoid these situations, schools should organize and conduct emergency exit drills for all pupils who ride the school bus.

A. Reasons for emergency evacuations:

1. Fire or danger of fire. Being near an existing fire or being in the presence of gasoline or other combustible materials is dangerous. If this situation arises, and the bus cannot be moved, pupils must be evacuated. The bus must be stopped and evacuated immediately if the engine or any portion of the bus is on fire. Pupils must be moved to a safe place 100 feet or more from the bus and instructed to remain there until the driver has determined that the danger has passed.

2. Unsafe position. When the bus is stopped because of an accident, mechanical failure, road conditions, or human failure, the driver must determine immediately whether it is safer for pupils to remain on the bus or evacuate.

3. Mandatory evacuations. The driver must evacuate the bus when:

(a). The final stopping point is in the path of a train or adjacent to railroad tracks.

(b). The stopped position of the bus may change and increase the danger (e.g., a bus comes to rest near a body of water or at a precipice where it could still move and go into the water or over a cliff). The driver should be certain that the evacuation is carried out in a manner that affords maximum safety for the pupils.

(c). The stopped position of the bus is such that there is danger of collision.

4. Sight distance. In normal traffic conditions, the bus should be visible for a distance of 300 feet or more. A position over a hill or around a curve where such visibility does not exist should be considered reason for evacuation.

B. Important factors pertaining to school bus evacuation drills:

1. Safety of pupils is of the utmost importance and must be considered first.

2. All drills should be supervised by the principal or by persons assigned to act in a supervisory capacity.

3. The bus driver is responsible for the safety of the pupils. When the driver is incapacitated and unable to direct the evacuation, school patrol members, appointed pupils, or adult monitors should be authorized to direct these drills. It is important to have regular substitutes available.

C. Pupils appointed to direct evacuation drills should possess the following qualifications.

1. Maturity.

2. Good citizenship.

3. Live near end of the bus run.
4. Knowledge and ability to:
 - (a). Turn off ignition switch.
 - (b). Set emergency brake.
 - (c). Summon help when and where needed.
 - (d). Use emergency windows and exits.
 - (e). Set reflective triangles.
 - (f). Open and close doors, and account for all pupils passing his or her station.
 - (g). Help small pupils off bus.
- D. Written consent from parent or guardian should be obtained before assigning a pupil as leader.
- E. Drills should be scheduled in a manner similar to fire drills held regularly in schools. They should be held more often during fall and spring months and conducted when the bus arrives at the school building with the pupils.
- F. Drills should be restricted to the school property and conducted under the supervision of school officials.
- G. Types of drills should be varied. (See "M" below.)
- H. Drivers should stay in the bus during evacuation drills. The driver must set the parking brake, turn the ignition off, and place the transmission in gear.
- I. Pupils should not be permitted to take lunch boxes, books, etc. with them when they leave the bus. The objective is to get pupils off safely in the shortest time and in an orderly fashion.
- J. Pupils should travel a distance of at least 100 feet from the bus in an emergency drill and remain there until given further directions.
- K. All pupils should participate in the drill, including those who ride only on special trips.
- L. Pupils should be instructed in how and where to obtain assistance in emergencies. Written instructions and telephone numbers should be posted in the bus.
- M. There are several different drills:
 1. Everyone exits through the front entrance door.
 2. Everyone exits through the rear-most emergency door or side door(s).
 3. Front half exits through front door and rear half exits through rear-most door or side doors.

SCHOOL BUS OPERATIONS: APPENDIX 6

BUS CONDUCT REPORT

Bus No. _____ School _____ Date _____

Pupils in the _____ School District who ride buses are subject to rules and regulations designed to provide safe transportation to and from school. Any behavior which distracts the driver is a serious hazard to the safe operation of the vehicle, and as such, jeopardizes the safety of all passengers. The consequence of continued inappropriate behavior could result in your child being denied the bus riding privilege.

Name: _____ has been cited for an infraction of the rules as checked below.

_____ Failure to remain seated

_____ Lighting matches

_____ Scuffling or fighting

_____ Throwing objects from window

_____ Profanity

_____ Refusing to obey driver

_____ Use of tobacco on bus

_____ Bothering others

_____ Extending arm or head out window

_____ Other (See Comment)

Comment: _____

Driver's Signature: _____

School Administrator's Signature: _____

Parent's/Guardian's Comment: _____

PLEASE SIGN AND RETURN TO SCHOOL ADMINISTRATOR

Parent/Guardian's Signature: _____

First offenses require at least a notification to the pupil and parent or guardian either by phone or in person by appropriate school personnel. Second and subsequent offenses may require a conference with the pupil's parent or guardian, driver, and school administrator(s) which may result in a period of suspension of pupil's riding privileges.

A form such as the one above should be used for reporting purposes.

SCHOOL BUS OPERATIONS: APPENDIX 7

HERE IS HOW TO CROSS THE ROAD SAFELY

1. Look at the driver. You should always see the driver.
2. Make sure the driver sees you.
3. Be sure you are ten giant steps in front of the bus.
4. Wait for the driver to signal you when it is safe to cross.
5. To be sure that it is safe, look left, right and left again before crossing the street.

Never cross behind the bus.

SCHOOL BUS OPERATIONS: APPENDIX 8

PUPIL TRANSPORTATION SAFETY CONSIDERATIONS IN SCHOOL SITE SELECTION AND PLANNING

SCHOOL SITE SELECTION AND PLANNING

A. When school sites are being selected, consideration should be given to the safety of the pupils riding school buses. School buses will use the roads in and around the school site and public roadways leading into and from the school area. High-density traffic flow near school exits and entrances should be avoided. Proper site selection and plant planning for improved school transportation is extremely important (See Appendix 13). Specifically, school officials should provide:

1. Separate, adequate space for school bus loading zones.
2. Clearly marked and controlled walkways through the school bus zones.
3. Traffic flow and parking patterns separate from the boarding zone.
4. A separate loading area for wheelchairs.
5. An organized schedule of loading areas with stops clearly marked.
6. A loading and unloading site free of conditions that require backing of school buses.

B. It is important that pupil transportation considerations be included in the planning and design of new school facilities if safety hazards are to be avoided and costly remodeling minimized. Consideration should be given to the roads or streets upon which school buses and other school traffic will travel to and from the school; the flow of traffic to and from loading-unloading areas and parking lots on the school property; and the design of loading-unloading areas to minimize the possibility of pedestrian-vehicle conflicts. Specific considerations and recommendations that should be included in school site selection and school plant planning are given below. It must be recognized that the sites upon which new schools are to be constructed are often selected prior to the hiring of an architect. It is therefore imperative that local school boards and municipal planning authorities be alerted as to the dangers inherent in the selection of a new school site without adequate consideration of transportation safety. Additional assistance in this area can be obtained by contacting the Specialist for Property Tax and Facilities at the State Office of Education, the State Department of Transportation, and appropriate road or street departments.

1. Sites that would result in high-density traffic near school entrances and exits should be avoided. This includes sites near freeway on-and-off ramps, areas of heavy commercial traffic, and roadways on which there is heavy commuter traffic to and from industrial plants.

2. The local roads servicing a school should have a paved width of at least 30 feet. If loading and unloading areas cannot be provided on the school property, the streets upon which loading and unloading is to be accomplished should have a paved width of at least 40 feet.

3. If necessary, traffic-control devices can be provided to assist school traffic to enter the regular traffic flow. Such devices can be installed only by the appropriate road or street authorities. Requests for such devices can be initiated by school officials.

4. To accommodate school buses that are eight-feet wide and 40 feet long, the roads leading onto the school site from the public access roads shall have a turn radius of at least 50 feet and preferably 100 feet. Islands may be used to minimize the width of driveway entrances and exits. Proposed driveway openings should be approved by appropriate road or street authorities. In particular, any driveway opening

on a state highway must be approved by the State Department of Transportation.

5. Design and placement of access roads should never require buses to be backed onto the school premises.

6. Wherever possible, the roadways on school property that are used by school buses should be physically separated from those used by parents, pupils, teachers, and other school personnel.

7. All school bus traffic on the school property should be considered as a one-way traffic flow, preferably with the service door side of the bus always next to the loading and unloading zone.

8. Whenever possible, roadways should not completely encircle the school building. Those areas that students must cross to engage in outside activities should be free of vehicular traffic.

9. School roadways should be at least 30 feet wide for one-way traffic and 36 feet wide for two-way traffic. Roads should be wider on all curves. Curves should have at least a 60-foot radius on their inner edges and there should be at least a 50-foot tangent section between reverse curves.

10. The pavement for school roadways used by school buses should be consistent with the higher axle weights of these vehicles. Pavement design and material standards are available from the Utah State Department of Transportation.

11. It is recommended that curbing and suitable drainage be provided on all school roads utilized by school buses. Curbing should comply with the standards of the Utah State Department of Transportation.

12. School roadways and loading areas should be designed to allow emergency vehicle access to the school at all times.

13. School roadways should be designed to eliminate or minimize sight obstructions. This includes elimination of blind corners, dips, and hollows which obstruct the line-of-sight of motorists using the roadway. In addition, landscaping should not be allowed to obstruct the motorist's view of intersecting roadways or walkways.

14. The grade of school roadways should be limited to two percent at entrances and exits and five percent elsewhere.

15. Whenever possible, school bus loading and unloading areas should be located on the school premises and off public thoroughfares.

16. In planning bus loading and unloading areas, consideration should be given to:

(a). The total number of pupils, teachers, and other school personnel at the school.

(b). The number of pupils to be transported to and from school on school buses.

(c). The number of buses involved.

(d). The type of schedule (staggered starting and closing times versus single opening and single closing time).

(e). Extracurricular activities requiring the use of school buses.

17. It is desirable to separate the school bus loading/unloading zone from the parking areas used by students, teachers, and administrators. Vehicular traffic to the parking areas should not pass through the loading areas used by buses or across the paths followed by bus riders entering the school building.

18. Diagonal parking of school buses at loading/unloading zones and parking areas is the most desirable arrangement as it is the safest formation for loading. Bumper-to-bumper positioning is acceptable if plenty of room between buses is available. Whatever arrangement is used, it should not be necessary for a school bus to back up while moving into or away from a loading/unloading zone.

19. Whenever possible, a separate discharge and pickup point should be established for students being transported by their parents in private automobiles. This area should also be separated from the school bus loading/unloading area. Hazardous conditions are often created by parents haphazardly discharging or picking up students in the area in front of or adjacent to school buildings. This is particularly true during periods of inclement weather.

20. School bus loading zones should be located such that students walking to school will not have to cross in front of parked school buses.

21. Canopies over school bus loading/unloading areas are not considered necessary or feasible except where disabled children are involved. In such cases, the canopy should be high enough to accommodate the tallest school bus.

22. In cases where students with severe disabilities are being transported by school bus, consideration should be given to a separate loading/unloading area especially designed for these students. Such an area might include entrance ramps, handrails, etc.

23. When school buses are parked on school grounds during the day, care should be taken that buses are located and oriented such that their reflective surfaces do not direct undue glare onto students in their classrooms.

C. In their zeal to save money, boards of education may be tempted to utilize land donated to them even though it has several safety hazards, i.e., located near highways with a high traffic density, unsatisfactory terrain, lack of space for off-street loading/unloading zones, etc. In some cases, the cost of eliminating the pupil transportation hazard could exceed the purchase price of a better site. Since it will be necessary to provide for the safety of students for many years to come, it may be more cost effective to purchase a new site rather than utilize a donated one.

SCHOOL BUS OPERATIONS: APPENDIX 9

CHECKLIST FOR THE EVALUATION OF SCHOOL DRIVEWAYS AND BUS LOADING/UNLOADING AREAS

It is recommended that the following form be used to evaluate the roadways and the passenger delivery/pickup points utilized by school buses at each of the schools serviced by the district pupil transportation program. A separate form should be completed for each school. A well-planned school will be identified by "yes" replies to all questions except 6, 7, and 8 which should be answered "no."

CHECKLIST FOR THE EVALUATION OF SCHOOL DRIVEWAYS AND SCHOOL BUS LOADING/UNLOADING ZONES

School District: _____ School: _____

Pupil Transportation Supervisor: _____ School Location: _____

Person Conducting Evaluation: _____ Date: _____

	YES	DOES NOT NO APPLY	COMMENTS
1. Are bus loading and unloading zones located within the school property?			
2. If bus loading and unloading takes place on a public thoroughfare, is the roadway at least 40 feet wide?			
3. Do the roadways on the school property which are used by school buses have at least 30 feet of paved width?			
4. If diagonal parking is provided for buses in the loading/unloading area, is the paved surface of the area at least 60 feet wide?			
5. Is the school bus movement on the school grounds one-way, with the right side of the bus toward the school building?			
6. Are school buses required to back onto the school property?			
7. Must school buses either back into or out of the loading/unloading areas?			
8. Does the school bus path completely encircle the school building?			
9. Does the bus driver have adequate sight distances at all conflict points?			
10. Are crosswalks across the roadways utilized by school buses well-marked?			

SCHOOL BUS OPERATIONS: APPENDIX 10

PROCEDURES FOR SCHOOL BUS DRIVERS AT RAILROAD GRADE CROSSINGS

A. General

1. When entering railroad tracks, a driver of any school bus must bring the bus to a complete stop not less than fifteen feet or more than fifty feet from the rails. This rule applies regardless of whether the bus is empty or carrying passengers.

2. When drivers are making stops for railroad crossings, they shall carefully observe traffic and reduce speed far enough in advance to avoid trapping other motorists in panic stops or rear-end collisions with the bus. On multiple lane roadways, no such stops shall be made in the center or left-hand lanes.

3. No special signs, signals, or flashers designated for use only on school buses shall be activated while the bus is stopped or stopping for this purpose. The bus driver will activate the four-way hazard lights or four-way flashers to alert motorists of the pending stop for the crossing.

4. The driver, when stopped, shall fully open the service door, and must, after stopping and while so stopped, listen and look in both directions along the track or tracks for approaching engines, trains, or cars. Upon resumption of motion, the service door will be closed.

5. If the view of the track or tracks for a distance of one thousand feet in either direction is not clear or is obstructed in any way, no portion of the bus may pass over the tracks until, by personal inspection, the driver has made certain that no train is approaching. In no instance may a signal indicating safety be considered as conclusive or serve to abrogate this precaution.

6. Drivers shall, in every instance, cross in such gear that will not necessitate changing gears while traversing such crossing and shall not, under any circumstances, shift gears while actually crossing tracks or railroad crossings. If bus has an automatic transmission, the transmission may be placed in "D" position.

7. For improved vision and hearing, the window at the driver's left should be open and all noisy equipment (fans, etc.) should be off until the bus has cleared the crossing.

B. At Crossings Controlled by Signals Only.

1. In addition to the above, the driver of a school bus which has stopped at any railroad track or tracks at which there is in operation flashing red lights and/or bell shall not proceed across such track or tracks unless by authorization from a law enforcement officer, transportation supervisor, or rail company representative. This does not relieve the driver of personal responsibility for safe crossing.

2. In the event that switching operations or stopped trains delay the use of the crossing unnecessarily for frequent or extended periods of time, complaint should be made through proper channels to railroad management and traffic authorities.

C. Crossings Controlled by Crossing Gates or Barriers.

1. No bus driver shall drive the bus through, around, or under any crossing gate or barrier at a railroad crossing while such gate or barrier is closed or being opened or closed.

2. The bus driver must never accept a lack of movement as indicating that the device is either in or out of order, but must always regard a railroad grade crossing as dangerous. The driver must not cross the tracks until he or she has conclusively ascertained that no train is approaching.

D. Weather Conditions.

During wet, stormy, or foggy weather, before placing part of the bus on the tracks, the driver must know conclusively that the crossing can be made safely. Any use of flares, etc., in addition to warning signals or devices maintained at such railroad crossings, must be taken as an additional warning of danger.

E. Management of Passengers.

When any school bus has stopped before crossing any railroad track, all passengers must be silent until the crossing is completed. A signal for silence shall be given by the driver in whatever manner is deemed appropriate and suitable.

SCHOOL BUS OPERATIONS: APPENDIX 11

CRITERIA FOR THE EVALUATION OF DISTRICT PUPIL TRANSPORTATION OPERATIONS

A. It is a fundamental principle of management that in the absence of control, any organization will degrade to the lowest level of productivity or efficiency and the highest level of disorder. There are four elements to the successful control of an organization. First, there should be a statement of the ultimate goal or objective of the organization. Second, there should be a measurement of the present performance of the organization. Third, the present performance of the organization should be compared to the goals and objectives of the organization. Finally, if the goal has not been achieved, action should be taken that enables the organization to move closer to its goals and objectives.

B. In pupil transportation, the ultimate objective is to provide children with safe transportation to and from school in the most efficient and cost-effective manner possible. The data and records gathered during the normal course of business provide a part of the information necessary to determine the present status of the pupil transportation program. The following criteria are means for relating this administrative information together to establish just how effective the program is. The criteria are intended for self-evaluation purposes but should be carried out in as impartial a manner as possible. Remember, the evaluation is intended to lead to an improvement in the program, not justification of present practices. Perfection will probably never be achieved, but should be continuously pursued. Although a favorable comparison with the performance of other districts and records of improvement in recent years are commendable, they are not justification for complacency. For the evaluation to be worthwhile, it must result in either (a) recommendations that result in improved policies and procedures, or (b) a determination that no change is necessary.

C. To be effective, a pupil transportation program should be safe, economical, and adequate. The evaluation criteria can be divided into these same three areas of consideration.

1. Safety. A good method of analyzing the safety record of a school bus fleet is to prepare documented answers to the following questions:

(a). How many accidents (or injury-producing incidents) did the pupil transportation system experience during the last year? How many during the past three years?

(b). Were any fatalities or serious injuries sustained by transported pupils or others?

(c). What is the estimated cost of the accidents experienced during the year?

(d). What was the average number of bus miles per accident? How does your district's value compare with the state average?

(e). Has the district's accident record improved during the past three years?

(f). What do the accident investigations disclose as to the responsibility for pupil transportation accidents?

(g). How many drivers have perfect safety records? How many have more than one accident?

(h). How many drivers have citation-free driving records? How many have received more than one traffic citation?

- (i). Are the bus driver recruitment policies effective in obtaining reliable and competent persons?
- (j). Does bus-driver training include sufficient emphasis on safe operation?
- (k). Are bus riders adequately trained in safety practices when boarding, riding, and leaving the bus?
- (l). Are the school buses adequately maintained?
- (m). Are bus routes designed and periodically reviewed to avoid traffic hazards?
- (n). Are the bus loading and unloading facilities at the schools adequate?
- (o). What are the frequency and nature of complaints received from parents, the motoring public, railroads, etc.?

2. Economy. The answers to the following questions will furnish information on the efforts being expended and the achievements made in the area of economic pupil transportation:

- (a). What does pupil transportation cost per pupil, per year, per bus mile?
- (b). How do transportation costs compare with other school expenditures?
- (c). Is there a discernable trend in pupil transportation costs during the past three years?
- (d). How do bus prices compare with those experienced by other districts?
- (e). How many students are transported in comparison to the capacity of the bus, i.e., what percent of the bus capacity is utilized?
- (f). How many miles are buses operated without passengers? What percentage of the route mileage is this?
- (g). Are bus drivers and maintenance personnel kept aware of bus operating costs?
- (h). Are competitive bidding and wholesale purchasing used in securing equipment and supplies?
- (i). What cost-saving measures have been implemented during the past three years?
- (j). What explanations are there for operating costs that appear too high or too low?

3. Adequacy of Service. The adequacy of the transportation services provided is another important aspect of the pupil transportation program that requires constant evaluation. The following questions should serve as a guide for examining the adequacy of a district's pupil transportation program:

- (a). What is the maximum time spent on a bus by a student in traveling to school in the morning? What is the average riding time for transported pupils? How many students must ride on a school bus for an hour or more to reach school or return home?
- (b). Are educational experiences provided for the students while they are on a school bus?
- (c). How long before classes start do students arrive at school and how long must they wait after school is out to board a school bus?

(d). What is the frequency with which trips are completed on schedule?

(e). What is the frequency and nature of road failures? How does this year's experience compare with that of the previous year?

(f). What is the frequency and nature of bus driver complaints of equipment difficulties and pupil-generated disturbances?

(g). How does the number and capacity of the district's pupil transportation vehicles compare with other districts on a geographical size or pupil population density basis?

(h). How does the number and length of bus routes compare with other districts on a geographical size or pupil population density basis?

(i). How many stops are there on each route and what is the average distance between stops? Is there a limit placed on the walking distance from a pupil's home to a bus stop? If yes, what is the basis for the limitation?

(j). Are pupils transported who do not meet state eligibility criteria? If yes, is there a written district policy setting forth which pupils are eligible for transportation at district expense? What factors other than distance are considered?

(k). What is the district policy concerning the transportation of extremely isolated pupils?

(l). What were the frequency and nature of requests for additional pupil transportation services received during the past year and the last three years? What additional services were initiated as a result of these requests?

(m). In what ways have pupil transportation services increased or improved during the past year and the last three years?

D. Summary

The preceeding questions are intended to elicit some of the information that a district pupil transportation supervisor will need to determine the quality or the shortcomings of the district's pupil transportation program. It is expected that the answers to these questions may elicit other questions and their answers which will be useful to the evaluation. The success of the evaluation will ultimately depend on how creative the pupil transportation supervisor is at (a) recognizing the goals and objectives of the pupil transportation program, (b) identifying the areas where improvement is justified, and (c) developing the policies and procedures that will result in the needed improvements in the pupil transportation program. It should also be noted that the evaluation questions call for quantitative data that can only be obtained if complete and detailed records have been kept. It should be recognized that accurate data is the cornerstone of defensible conclusions and that improvements in the pupil transportation system that can be justified on the basis of factual information will more than offset the effort expended in accumulating and maintaining the required records.

SCHOOL BUS OPERATIONS: APPENDIX 12

SAMPLE FIELD TRIP/ACTIVITY TRIP REQUEST FORM

PART I: TO BE FILLED OUT BY SCHOOL

Trip Date: _____ School: _____

Trip Destination: _____

Depart From: _____ Number of
Passengers: _____

Extra Equipment Needed: _____

Departure: _____ Arrival Time: _____

Meal Stop Required? Yes _____ No _____ If yes, where? _____

Purpose of Trip: _____

Transportation Requested By: _____ Date Requested: _____
(Teacher, coach, etc.)

Request Approved By: _____ Date Approved: _____
(Principal or other administrator)

Reimbursement Category: _____

PART II: TO BE FILLED OUT BY TRANSPORTATION

Vehicle Assigned: _____ Driver's Name: _____

Spot Time: _____ Spot Location: _____

Routing Instructions: _____

Time Out: _____ Time In: _____ Total Time Spent: _____

Mileage Out: _____ Mileage In: _____ Total Mileage: _____

Actual Number of Students: _____ Actual Number of Adults: _____

Special Instructions for Driver: _____

Driver's Post-trip Remarks: _____

Driver's Signature: _____ Date Signed: _____

Transportation Supervisor's Signature: _____ Date Signed: _____

SCHOOL BUS OPERATIONS: APPENDIX 13

PUPIL LOADING SCALE

- ▶ For purposes of calculation of Gross Volume Weight (GVW), the National Standard for driver's weight is 150 lbs.; and the pupil weight of 120 lbs. shall be used.
- ▶ Bus routes achieving the pupil loads listed above should be considered excellent utilization and safe actual GVW for seated pupils.
- ▶ All bus manufacturers shall certify Gross Volume Weight Rating (GVWR) to meet bus rated capacities as prescribed above.

SCHOOL BUS OPERATIONS: APPENDIX 14

SAMPLE TRANSPORTATION AGREEMENT

THIS AGREEMENT MADE THIS _____ DAY OF _____ 19____ by and between the _____ Board of Education hereinafter referred to as "Board" and _____ of _____ County, hereinafter referred as the "Contractor."

NOW THEREFORE, the Board and the Contractor, for the consideration hereinafter provided, agree as follows:

1. The contractor agrees to transport students enrolled in the public schools of the _____ school district from _____ to _____ or commencing on _____ day of _____ through _____ day for _____ days of the regular school year on a schedule adopted by the Board as attached hereto as Appendix A.
2. The contractor agrees to provide an adequate vehicle for the transportation of these students and to operate and maintain said vehicle in a manner as to assure the health and safety of the student occupants in accordance with the current "Standards for Utah School Buses and Operations" published by the Utah State Office of Education.
3. The contractor hereby agrees to identify and hold harmless the _____ school district, the Board of Education and its officers, agents, and employees from and against any and all loss, damages, injury, liability, and claims therefore, including claims for personal injury or death, damages to personal property resulting directly or indirectly from the performance of this agreement by the _____.
4. The Board cannot assume the payment of taxes owed by others, including taxes on the contractor's vehicle, nor does the _____ school district hereby waive imposition or collection of any tax against the contractor or others.
5. For the transportation services specified, the Board agrees to pay the contractor at the rate of _____ cents per round trip mile not to exceed _____ miles per day or on a flat rate basis of _____ per day. Payment should be made on a _____ basis no later than the _____ day of each _____.

The Board may request special trips in addition to those scheduled if mutually agreed to by both parties at the following rate of _____ per mile.

The contractor shall render such services as an independent contractor and, as such, shall have no authorization, expressed or implied, to bind the Board to any agreement, settlement, liability, or understanding whatsoever, nor to perform any acts as agent for the _____ school district except as especially set forth herein. The compensation provided for herein shall be the total compensation payable hereunder by the Board.

IN WITNESS THEREOF said parties have hereto set their hands and seal at _____, Utah _____ the day first written above.

BY: _____ BY: _____

President : _____ Contractor: _____

Board of Education

BY: _____
Superintendent of Schools School District

Note: Not more than one percent of contractor's price may be charged for district administrative expense connected with the transportation program.

SCHOOL BUS OPERATIONS: APPENDIX 15

UNIFORM SCHOOL BUS ACCIDENT REPORT FORM

School District _____ Driver's Name _____
Driver's License Number _____ Social Security Number _____
Bus Body Make _____ Bus Chassis Make _____ Bus Type _____ Year Model _____
Vehicle Identification Number _____ GVWR _____ Capacity _____
Wheelchair Equipped? Yes _____ No _____
Number of Passengers on the bus at the time of the accident (excluding driver) _____
Date and Time of Accident _____ Location of Accident _____
Person Filling Out Report (please print) _____ Supervisor's Signature _____

PART I: School Bus Physically Involved

1. Type of Accident:

Motor Vehicle _____ Fixed Objects _____ Non-collision Pedestrian _____
Railroad Train _____ Pedalcycle _____ Other Collision _____

2. Complete if Fixed Object Accident:

Embankment _____ Utility Pole _____ Sign _____
Guardrail _____ Bridge Rail _____ Fence _____
Curb or Wall _____ Culvert or Head Wall _____ Fire Hydrant _____
Parked Vehicle _____

3. Did Accident Result In:

Fatality _____ Non-incapacitating Injury (moderate) _____ Non-incapacitating injury (serious) _____
Possible Injury (minor) _____ Property Damage Only Equaling or Exceeding \$500 _____

4. Manner of Collision:

Angle _____ Head-on _____ Rear-end _____
Broadside _____ Other _____

5. Bus Direction Analysis

Collision with Pedestrian:

Intersection: Bus Going Straight _____ Bus Turning Right _____ Bus Turning Left _____
Bus Backing Up _____ Other Action _____

Non-Intersection: Bus Going Straight _____ Bus Turning Right _____ Bus Turning Left _____
Bus Backing Up _____ Other Action _____

Collision with Other Vehicle:

Intersection: Entering at an Angle, Both Moving _____ Same Direction, Both Moving _____
Opposite Direction, Both Moving _____

Non-Intersection: Same Direction, Both Moving _____ Opposite Direction, Both Moving _____
One Vehicle Stopped _____

All Other Collisions:

Intersection: Fixed Object _____ Other Motor Vehicle _____
Train, Pedalcycle _____ Animal _____
Other Object _____

Non-Intersection: Fixed Object _____ Other Motor Vehicle _____
Train, Pedalcycle _____

Non Collision:

Intersection: Overtake _____ Other non-collision _____

Non-Intersection: Overtake _____ Other non-collision _____

6. **Contributing Circumstances:**

BUS DRIVER:

Speed_____	Failure to Yield_____	Ran Stop Sign_____	Disregarded Signal_____
Improper Overtaking_____	Improper Turn_____	Followed Too Closely_____	Backing_____
Sudden Movement_____	Improper Distance Judgment_____	Defective Tires_____	Defective Brakes_____
Defective Lights on Vehicle_____	Defective Steering_____	Drove Left of Center_____	

OTHER DRIVER:

Speed_____	Failure to Yield_____	Ran Stop Sign_____	Disregarded Signal_____
Improper Overtaking_____	Improper Turn_____	Followed Too Closely_____	Backing_____
Sudden Movement_____	Improper Distance Judgment_____	Defective Tires_____	Defective Brakes_____
Defective Lights on Vehicle_____	Defective Steering_____	Drove Left of Center_____	

7. **Other Factors:**

Defective Road Surface_____	Slippery Road_____	Inoperative Signal_____	Obstructed View_____
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8. **Posted Speed Limit:**_____ 9. **Number of Lanes On Roadway:**_____ 10. **Approximate Speed of Bus:**_____

11. **Was Bus Driver's Safety Belt Fastened at the time of the Accident?** Yes_____ No_____

12. **School Bus Use at Time of the Accident:**

Regular Route_____	Field Trip/Activity Trip_____	Special Ed Route_____	Other_____
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13. **Road Condition:**

Dry_____	Icy_____	Holes/Ruts_____	Wet_____
Under Repair_____	Snow Packed_____	Muddy_____	Other_____

14. **Light Conditions:**

Dawn_____	Daylight_____	Dusk_____	Dark (lighted)_____	Dark (not lighted)_____
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15. **Weather Conditions:**

Clear_____	Sleeting_____	Snowing_____	Smog_____	Raining_____	Dusty_____
Fog_____	Other_____				

PART II: Loading/Unloading Accidents

1. **At the Time of the Accident, where was the bus?:**

Approaching Loading Zone_____	Stopped In the Zone_____	Leaving the Zone_____	Not In Sight_____
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2. **Was a pupil:** Hit by the bus_____ Hit By Another Vehicle_____

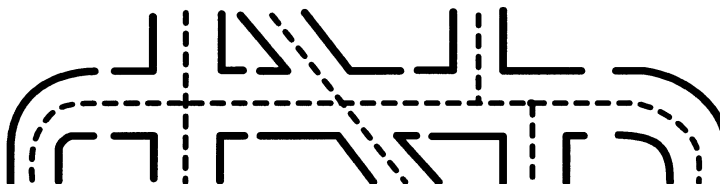
3. **Number Injured:**_____

4. **Location of Injured:** On Side of Road_____ On Sidewalk_____ In Roadway_____ Other_____

5. **Description of Accident:**

PART III: DIAGRAM OF ACCIDENT

Complete the following diagram showing direction and position of vehicles involved, and clearly designating the point of impact. If this diagram will not suffice for the accident, attach a separate sheet with a similar illustration. (Indicate NORTH by an arrow.)



SCHOOL BUS OPERATIONS: APPENDIX 16

RELATED STANDARDS, LEGAL OPINIONS, ETC.

STOPPING FOR SCHOOL BUS - REQUIREMENTS

Utah Code Annotated 1953, Section 41-76-100.10:

1.(a). Every school bus, when operated for the transportation of school children, shall bear upon the front and rear of the bus a plainly-visible sign containing the words "school bus" in letters not less than eight inches in height, which shall be removed or covered when the vehicle is not is use for the transportation of school children.

(b). Every school bus, when operated for the transportation of school children, shall be equipped with alternating flashing amber and red light signals visible from the front and rear, of a type approved and mounted as prescribed by the department.

2. The operator of any vehicle upon a highway, upon meeting or overtaking any school bus equipped with signals required under this section which is displaying alternating flashing amber warning light signals, shall slow his vehicle, but may proceed past the school bus using due care and caution at a speed not greater than specified in subsection 41-6-46 (2) for school zones for the safety of the school children that may be in the vicinity. If a school bus is displaying alternately flashing red light signals visible from the front or rear, all approaching or overtaking vehicles on the same roadway shall stop immediately before reaching the bus and may not proceed until the flashing red light signals cease operation. The operator of a vehicle need not stop upon meeting or passing a school bus traveling in the opposite direction when:

(a). Traveling upon a divided highway;

(b). The bus is stopped at an intersection or other place controlled by an official traffic control device or peace officer; or

(c). Upon a highway of five or more lanes, which may include a left-turn lane or a two-way left-turn lane.

3.(a). The operator of a school bus shall operate (these) alternating flashing red light signals at all times when children are unloading from a school bus to cross a highway, or when a school bus is stopped for the purpose of loading children who must cross a highway to board the bus, or at any other time when it would be hazardous for vehicles to proceed past the stopped school bus.

(b). The alternating flashing red light signals may not be operated except when the school bus is stopped for loading or unloading school children or for any emergency purpose.

4. Utah Code Annotated 1953, Section 41-76-100.10 (Amended May 1, 2000)

The operator of a school bus being operated on a highway shall have the headlights of the school bus lighted.

SCHOOL BUS OPERATIONS: APPENDIX 17

COMMERCIAL VEHICLE SAFETY ACT OF 1986

On October 26, 1986, Congress passed the Commercial Motor Vehicle Safety Act of 1986. This law requires each State to meet the same minimum standards for commercial driver licensing. The standards require commercial motor vehicle drivers to get a Commercial Drivers' License (CDL). You must have a CDL to operate any of the following Commercial Motor Vehicles (CMVs):

- a) A single vehicle with a gross vehicle weight rating of more than 26,000 pounds.
- b) A trailer with a gross vehicle weight rating of more than 10,000 pounds if the combination weight rating of a vehicle is more than 26,000 pounds.
- c) A vehicle which requires hazardous materials placards.
- d) Any size vehicle used as a school bus.

To get a CDL to drive a school bus in Utah, you must pass knowledge and skill tests. You will be required to pass a general knowledge written test and any written endorsement tests that your vehicle may require, including an air brake endorsement test, a passenger endorsement test, and a school bus endorsement test. You must pass all written tests before you will be allowed to take any of the performance tests which include a pre-trip inspection, a skills test, and a road test. All tests must be taken in a school bus that is appropriate to the class of CDL you wish to obtain.

There are other rules which affect CDL drivers:

- * You cannot have more than one license. If you break this rule, a court may fine you up to \$5,000 or put you in jail.
- * You must notify your employer within 30 days of a conviction for any traffic violation (except parking).
- * You must notify your employer if your license is suspended or revoked, or if you are disqualified from driving.
- * You must give your employer information on all driving jobs you have held in the last 10 years when applying for any CDL-related job.
- * Your employer may not let you drive a CMV if you do not have a CDL, or if your license has been revoked or suspended. A court can fine your employer up to \$5,000 or put him/her in jail for breaking this rule.

Once you have taken all the tests and received a CDL license, you will not have to retake the tests unless your license is suspended or revoked, or you let it expire. You will have to fill out a form and pay the usual fees for your license and its endorsements. You cannot renew your CDL by mail.

SCHOOL BUS OPERATIONS: APPENDIX 18

DRUG AND ALCOHOL TESTING

The Utah State Board of Education has adopted a companion handbook entitled "*Pupil Transportation Drug and Alcohol Testing Policies and Procedures*." It has been adopted by reference into the *Standards for Utah School Buses and Operations*, and is published as a separate document.

SCHOOL BUS OPERATIONS: APPENDIX 19
(Approved by the Utah State Board of Education, March 5, 2004)

ACTIVITY SCHOOL BUS AUTHORIZATION REQUEST

We hereby request permission from the Utah Department of Transportation, Motor Carrier Division, for the following vehicle to be used as an Activity School Bus in the state of Utah:

Manufacturer Name: _____ Year of Vehicle: _____

Type of Vehicle: (A,B,C or D) _____ V.I.N. # _____

We understand that the vehicle must be inspected by the Utah Department of Public Safety prior to being initially placed into service, and that the vehicle may be subject to bi-annual inspections by the vehicle safety inspection section of the Utah Highway Patrol.

We also understand that the above vehicle will only be used as an Activity School Bus as defined in the current edition of the *Utah Standards for School Buses and Operations*, and will not be used for busing school children on regular routes, to-and-from school.

Signature of
Authorized Representative

UTAH D.O.T. USE ONLY

Approved by: _____
Utah Department of Transportation

SCHOOL BUS OPERATIONS: APPENDIX 20
(Approved by the Utah State Board of Education, March 5, 2004)

UTAH STATE OFFICE OF EDUCATION
INSULIN DEPENDENT DIABETIC WAIVER

NOTE: If driver meets the following requirements AND is otherwise deemed by the undersigned medical examiner as physically able to perform the required functions required as a school bus driver, this waiver MUST be attached to the Medical Examination Report.

1. **DRIVER'S INFORMATION:** (Must be completed by driver for waiver to be valid)

- Name:
- Social Security Number:
- Date of Birth:
- Phone Number:
- Driver License #:

2. **INSULIN DEPENDENT DIABETES INFORMATION:**

NOTE to medical examiner: If the answer to **ANY** of the following questions is "NO" **DO NOT sign this waiver.**

- | | YES | NO | |
|----|--------------------------|--------------------------|--|
| a. | <input type="checkbox"/> | <input type="checkbox"/> | Do the results of this driver's glycosylated hemoglobin test indicate values between 6.0% and 9.5% inclusive, on other than an incidental basis and not as a result of a failure to control glucose levels? |
| b. | <input type="checkbox"/> | <input type="checkbox"/> | Within the past three (3) years, has this driver completed instruction to address all of the following: diabetes management and driving safety; signs and symptoms of hypoglycemia and hyperglycemia; and what procedures must be followed if complications arise? |

3. **Medical Examiner's Comments on School Bus Driver's Control of His/Her Diabetes:**

SIGNATURE OF MEDICAL EXAMINER AND TITLE:

(Must be the same medical examiner who performed all aspects of the regular physical examination)

TITLE: _____ DATE: _____

SIGNATURE: _____ PHONE NUMBER: _____

ADDRESS: _____

SCHOOL BUS OPERATIONS: APPENDIX 21
(Approved by the Utah State Board of Education, March 5, 2004)

UTAH STATE OFFICE OF EDUCATION
PHYSICAL PERFORMANCE ASSESSMENT GUIDELINES

ASSESSMENT OVERVIEW

Beginning January 1, 2005, this physical assessment form is for use by school districts to evaluate an applicant or school bus driver to determine how well they perform functions directly related to transportation specific requirements. The primary reason for these guidelines is to enhance safety for pupil riders. This is not a medical examination. When this assessment tool is used, you will want to notify the person being evaluated of the scope of the performance demonstration. When you use this assessment please note that you must use the same assessment with all persons in the job category of school bus driver.

WHO CAN ADMINISTER THE TEST AND WHAT VEHICLE SHOULD BE USED?

Any person who has been certified as a State Certified School Bus Instructor or a District Level Instructor can administer the assessment. The vehicle used for the assessment should be the vehicle that will be driven most often by the employee being assessed.

USING THE PERFORMANCE ASSESSMENT GUIDELINES AND FORM

These tasks have been developed as a tool that school district transportation and human resource personnel can use as a guide in determining whether person can perform job related tasks required of a school bus driver.

ADMINISTERING THE PERFORMANCE ASSESSMENT

TASK #1. Driver must demonstrate the ability to open the hood, engine cover, or doors to the engine area.

This task is designed to evaluate the applicant's ability to pull, push, and or lift with enough force to open and close different styles of school bus engine area covers.

TASK #2. Driver must demonstrate the ability to check under the bus to visually inspect four different areas: suspension, brakes, drive line, and frame.

This task involves the driver's ability to squat, bend, or kneel and the ability for rotate their head while in these positions.

TASK #3. Applicant must demonstrate the ability to walk up and down the bus steps. The task will begin with the driver facing the step-well while standing on the ground outside.

This measurement is designed to evaluate the applicant's ability to enter and exit the vehicle using the stairs located at the service door. NOTE: THE CORRECT PROCEDURE FOR THIS TASK INCLUDES THE USE OF THE HANDRAIL. The evaluator should be positioned behind the driver, about four feet away. Applicant should be able to walk up and down the bus steps three times in 30 seconds.

TASK #4. Driver must demonstrate the ability to alternately activate the accelerator and brake control five times with the right foot and, if applicable, to depress the clutch pedal with the left foot while alternating the right foot between the accelerator and the brake.

This task will measure the applicant's foot- to-pedal control and, if necessary, the ability to depress the clutch pedal at the same time. The evaluator should be positioned to observe the complete pedal compressions.

TASK #5. Driver must demonstrate the ability to open and close different types of bus entry doors five consecutive times.

This task will measure the driver's ability to reach and manipulate the service door assembly repeatedly.

TASK #6. Driver is to demonstrate the ability to operate hand controls while simultaneously maintaining eye-focus on to the traffic viewpoint.

This task is to be evaluated while vehicle is parked. The applicant will operate hand controls (turn signals, emergency four way flashers) on either side of the steering wheel while focusing their eyes on the traffic area ahead of the bus.

TASK #7. A seat belted driver must demonstrate the ability to leave the driver's seat and exit the school bus by the closed, rearmost emergency exit door while carrying a bag that weighs a minimum of 40 lbs. within a time limit of 60 seconds.

This task begins with the driver seated and belted into the seat. When the evaluator says "start" the applicant is to release the seat belt, remove a 40 lb. bag from the right front seat and carry the bag to the rearmost emergency exit on the bus, open the emergency exit, set the bag down on the rearmost right seat and then safely exit the bus to the ground within a time limit of 60 seconds.

DO NOT LET THE DRIVER JUMP FROM A STANDING POSITION. The "sit and slide" method prevents the driver from hitting his/her head on the doorway upon exiting the bus. The evaluator should be positioned outside the bus to observe the driver exiting.

PHYSICAL PERFORMANCE TASK EVALUATION FORM

DRIVER'S NAME _____ **DATE** _____

EVALUATOR'S NAME _____ **DISTRICT** _____

COMMENTS: _____

COMMENTS: _____

COMMENTS: _____

COMMENTS: _____

COMMENTS: _____

COMMENTS: _____

COMMENTS: _____